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ACCOUNT OF THE OPERATIONS OF  
THE GREAT TRIGONOMETRICAL SURVEY OF INDIA  
VOLUME X.

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ELECTRO-TELEGRAPHIC LONGITUDE OPERATIONS

EXECUTED DURING THE YEARS 1881-82, 1882-83 AND 1883-84

BY

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AND

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## PREFACE.



The present volume—the tenth—of the *Account of the Operations of the Great Trigonometrical Survey of India*, describes, in continuation of the ninth volume, the Electro-Telegraphic Operations for the determination of Differential-Longitudes which have been completed by this Survey, up to the end of the field season of 1883-84.

This branch of the Geodetical Operations of the Survey of India is introduced to the reader in a very able and interesting manner by General Walker, R.E., late Surveyor General of India, in his preface to Volume IX, where attention is justly called to the very liberal view that has always been taken by the Government of India of the importance of the purely Scientific Operations of the Great Trigonometrical Survey in contributing to the data for the investigation of the Figure of the Earth and of other interesting problems, although the Survey was primarily instituted for other, that is to say, for geographical purposes. General Walker also gives an account of the ways and means by which the Electro-Telegraphic Longitude Operations were initiated in India and describes briefly the instrumental equipment and method of using it, allotting to the able operators the acknowledgments due to their respective shares in the operations, besides giving other interesting information of a prefatory nature, to which the reader is necessarily referred.

The present volume is divided into two parts, and supplemented by an appendix. Part I contains six introductory chapters in which are described in considerable detail the instrumental equipment and electrical apparatus, the methods of determining the relative personal equation of the observers, the system of observing transits and the adjustments of the instruments; in it is also given an explanation of the Tables in Part II, which contains enough of the computations to enable the reader who feels so inclined to check the results obtained, and to deduce his own conclusions from them. The Appendix contains various papers, descriptive and critical, written by the Officers (Lieut.-Colonels Strahan and Heaviside) who conducted the work; also the details of the triangulation connecting the stations at which the longitude observations were made with the main triangulation of the country, and a comparison in tabular form of the values of the Electro-Telegraphic longitudes with the geodetic values, together with the errors exhibited at the close of each triangular circuit, to which the reader who is interested in the final results, without caring to follow in detail the means by which they are elaborated, is referred. It also contains tables showing the values of the wire intervals of the transit telescopes employed, and information on other minor points connected with the work.

The following are the arcs of longitude of which the details of measurement will be found in this volume, the eastern terminus of the arc being always placed first.

<i>In Season 1881-82.</i>	<i>In Season 1882-83.</i>	<i>In Season 1883-84.</i>
Fyzabad-Agra.	Jalpaiguri-Fyzabad.	Akyab-Calcutta.
Fyzabad-Jubbulpore.	Jalpaiguri-Calcutta (remeasurement).	Akyab-Chittagong.
Hazaribagh-Fyzabad.	Chittagong-Jalpaiguri.	Prome-Chittagong.
Hazaribagh-Jubbulpore.	Chittagong-Calcutta.	Prome-Akyab.
Calcutta-Hazaribagh.	Calcutta-Fyzabad.	Moulmein-Akyab.
Jalpaiguri-Hazaribagh.	Calcutta-Jubbulpore.	Moulmein-Prome.
Jalpaiguri-Calcutta.	Fyzabad-Jubbulpore (remeasurement).	
	Fyzabad-Agra (remeasurement).	

The remeasurement of three arcs in the season 1882-83 was rendered necessary by a defect in the instruments. The same fault had previously been noticed in 1872-73, the first year the instruments were employed in India, and had been remedied by Mr. Doderet, the Mathematical Instrument Maker to the Madras Government, but, as it appears, not very effectually, and hence the remeasurement of the three arcs in question was rendered imperative. Information on this point will be found partly in Chapter VI of this volume, and more fully in the Appendix, page (22).

It may not be out of place here to say a few words in regard to the ends and objects served by these refined observations. Their chief importance lies in the very valuable data which they in combination with the trigonometrical operations afford for the investigation of the Figure of the Earth: this investigation in return resulting in reciprocal benefit to the Indian Survey. In order that the true Latitudes, Longitudes and Azimuths of the stations of a system of triangulation on the Earth's surface may be computed, it is necessary that the polar and equatorial axes of the Terrestrial spheroid should be correctly known, as they are involved in the formulæ by which such computations are effected. The values of those elements that have since 1830 been used in the calculations of this Survey are those known as "Everest's Constants, 1st Set." Any error in the adopted elements will of course result in an error in the geodetical latitudes and longitudes of the stations which will increase with the distance from the station taken as the origin for the whole system. When Colonel Everest computed his 1st Set of Constants the amount of reliable data available for their determination, though comparatively small, was deemed sufficient to afford elements approximating so nearly to the truth as to enable the Latitudes and Longitudes of places on the extreme limits of India to be determined without any practically appreciable error; and his first set of constants was therefore adopted and has been adhered to in all the subsequent calculations in this Survey. Now that the geodetic operations have been extended over the whole Peninsula, and indeed along the Coast of Burma and as far east as Bangkok, it is a matter of considerable interest to ascertain as near as may be the amount of error in the positions of the extreme stations resulting from the adoption of these constants.

The data for such investigations is furnished by

- (1) Comparison of observed latitudes with geodetic latitudes;
- (2) Comparison of observed longitudes with geodetic longitudes; and
- (3) Comparison of observed azimuths with azimuths deduced through the triangulation from the station of origin.

The respective differences shown up by these comparisons are combinations of errors, of which two are gradual, increasing with the distance from the origin, *i.e.*, error in the adopted constants, and error in the initial azimuth at the origin giving the orientation to the whole system; another error which follows no formulated law, is caused by deflection of the plumb-line due to inequalities in the form and density of the Earth's crust, and since this, though it cannot be independently determined, is known to be frequently a very appreciable quantity, while the residual errors due to observation and reduction—also indeterminable—must be exceedingly small, it would not sensibly affect the results if they were ignored and merged in the local attraction and the differences regarded as combinations of errors from but three sources, adopted constants, orientation and local attraction. By largely multiplying the stations of comparison these differences can, by the mathematical process known as the solution of equations of condition by the method of minimum squares, then be resolved into

their component parts without appreciable error in the results. The astronomical observations therefore meet a need of great scientific importance in determining correct measures of the elements of the terrestrial globe; they also determine accurately the orientation of India and so furnish the corrections due to the latitudes and longitudes arising from error both in original constants and orientation: they contribute largely towards the investigation of local attraction, a subject now greatly engaging geodesists and geologists in Europe: they serve to determine with great accuracy the position of India with respect to its distance from Greenwich: and lastly, they furnish considerable and valuable data for the amelioration of existing star tables, that is to say, the latitude and longitude observations afford material for improving the places of about 900 stars, while the azimuth observations contribute data for the very accurate determination of the North Polar Distances of a number of near circumpolar stars. But before the application of the Electric Telegraph to the determining of longitudes the second kind of comparisons could not be made, because the longitudes determined by the old methods were not sufficiently accurate for such a purpose; a case in point being that of Madras which, though the result of many years' careful observations taken with all the refinements of a well equipped observatory, was discovered through these Electro-Telegraphic Operations to be erroneous by about  $2\frac{1}{2}$  minutes of arc which had the effect of placing India nearly 3 miles too far from Greenwich and of undeservedly ascribing an error of 10 seconds to the chronometers of all ships arriving at Indian ports from Europe or America. The introduction therefore of these Electro-Telegraphic Longitude Operations into India was a most valuable addition to the geodetic operations of the Indian Survey.

As neither the latitude nor longitude operations are as yet complete the comparisons above mentioned cannot at present be systematically made or final conclusions arrived at, but it may be interesting to consider the effects on the geodetic latitudes and longitudes of places on the extreme limits of the Indian triangulation that would be caused by such errors as may very possibly be discovered to exist in the originally adopted elements of the terrestrial spheroid. From later information Everest computed a second set of values for the elements which he published in his "Account of the Measurement of two Sections of the Meridional Arc of India" in 1847: these, together with six sets derived by other geodesists, will be found at page 130 of Volume II. Now supposing it were proved that the latest determined, that is the last of the sets of constants in that table, were correct, then the substitution of these values for Everest's 1st Set would cause a change of position of the four extreme stations of the triangulation as under:—

Stations	Corrections in			
	Latitude		Longitude	
	"	Feet	"	Feet
Pesháwar ... ..	— 2'228 =	225	+ 3'886 =	327
Bankok ... ..	+ 2'209 =	223	— 12'443 =	1051
Cape Comorin ... ..	+ 2'041 =	206	— 0'018 =	2
Kurrachee ... ..	+ 0'085 =	9	+ 6'174 =	569

The station of origin is Kaliánpur of which the longitude differs very slightly from that of Cape Comorin, so that whichever set of elements be adopted the correction to the longitude of Cape Comorin will of necessity be very small. With this exception the corrections in the above table are quantities well within the detective power of the respective latitude and longitude instruments.

It would have been impossible to carry out Electro-Telegraphic Longitude Operations in India without the hearty co-operation and assistance of the Government Telegraph Department. Colonel Murray, the late Director General of Telegraphs, and Mr. A. J. Cappel, the present holder of that appointment, have always responded most cordially to my applications for the use of the telegraph lines when required for observation; and although this concession on the part of the Telegraph Department frequently caused extra trouble and attendance of subordinates it was always liberally met, and both Colonels Strahan and Heaviside have reported their appreciation of the unvarying courtesy and attention met with from the numerous officers of the Telegraph Department with whom they have had any business relations.

It only remains for me to repeat that the whole of the observations in this volume were taken by Colonels W. M. Campbell (now Major-General), Strahan and Heaviside, and to add that the reductions of the observations and the determination of the several arcs of longitude were also effected conjointly by those Officers, the greater part falling to the share of the two last named. The descriptive chapters in the present volume are borrowed largely from those in Volume IX which are due to General Campbell, and have been merely altered by Colonel Strahan where necessary to suit the equipment as at present used. The tabular arrangement of the numerical details of the observations and the papers contained in the Appendix are due to the last mentioned Officer in connection with Colonel Heaviside. The volume was printed at the Office of the Great Trigonometrical Survey in Dehra Dún under the supervision of Mr. W. H. Cole, M.A.

*December, 1887.*

C. T. HAIG, COLONEL, R.E.,

*Deputy Surveyor General,*

*In charge Trigonometrical Surveys.*

PAGE					
(27)	line 8 from top		for $r, r_2, r_3, \&c.$		read $r_1, r_2, r_3, \&c.$
2	last line		„ $c_1$		„ $c$
5	add at foot of page. NOTE.—The values of $b$ at Jalpaiguri on March 22, April 4 and 5 are derived from the mean value of $C_0$ for each date.				
„	at Jalpaiguri for April 4 and 5 in column headed $b$	}	for $+ 5.2, + 5.3, + 6.9, + 4.7$		read $+ 4.9, + 4.8, + 4.8, + 5.7$
7	line 10 from top	col. 14	„ $+ 0.26$		„ $+ 0.21$
34	„ 4 from bottom	„ 8	„ 7 6 49		„ 7 14 49
„	„ 2	„ „	„ 6 55 48		„ 7 3 48
„	„ 4	„ „	„ 7 7 50		„ 7 15 50
„	„ 2	„ „	„ 6 56 46		„ 7 4 46
35	„ 4	„ „	„ 8 30 56		„ 8 31 53
„	„ 2	„ „	„ 8 11 12		„ 8 12 9
36	„ 4	„ „	„ 8 33 19		„ 8 33 22
„	„ 2	„ „	„ 8 13 18		„ 8 13 21
62 to 73	in heading of table		„ Reduction of $d$ to $t_x$ by Relative Rate Correction $R_1$		„ Reduction of $d$ to $t_x$ by Relative Rate Correction $R$
73	line 4 from bottom	„ 11	„ 1 8.761		„ 1 8.752
„	„ 3	„ „	„ 12 9 48		„ 12 11 8
80	last line	„ 18	„ $+ 31.048$		„ $+ 31.052$
153 to 164	The values of $\alpha$ at Jalpaiguri for 19th March and 6th April were obtained from Table II by combining the first value of $\alpha_1$ with the mean of the last two values for each date respectively; for the 22nd March and 4th April, by rejecting the first value of $\alpha_1$ and taking the mean of the last two; and for the 5th April, by rejecting the first value of $\alpha_1$ and combining the second value with the mean of the third and fourth.				
„	The value of $c$ at Jalpaiguri for 5th April is the mean obtained from Table I by giving half weight to the second value.				



# **ELECTRO-TELEGRAPHIC LONGITUDES**

## **PART I.**

---

**DESCRIPTION OF THE INSTRUMENTAL EQUIPMENT**

**AND OF**

**THE OPERATIONS GENERALLY**

**WITH**

**DETAILS OF THE SYSTEM OF OBSERVING**

**AND OF**

**REDUCING THE OBSERVATIONS**

**DURING**

**1881-82, 1882-83 AND 1883-84.**





## CHAPTER I.

### DESCRIPTION OF THE INSTRUMENTAL EQUIPMENT.

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#### 1.

##### *Equipment.*

The Instrumental Equipment was the same with some trifling exceptions as that described in Volume IX of the *Account of the Operations of the Great Trigonometrical Survey of India*, but for the sake of convenience the description as there given is now repeated with the necessary alterations.

#### 2.

##### *The Transit Telescopes.*

The Transit Telescopes are by Messrs. T. Cooke and Sons, of York, sister instruments of nearly identical dimensions: they are marked No. 1, and No. 2. One of these is shown in Plate I in position for the observation of the reflection of the wires in the mercury trough. The focal length is slightly over 5 feet, and diameter of object glass the whole of which is effective is 5 inches. There are two wire diaphragms, one of which carries a single vertical, and a pair of horizontal wires—about 1' apart—crossing the centre of the field; and the other a set of 25 vertical wires, arranged in groups of 5 each, for the observation of transits. The latter diaphragm is worked by a micrometer screw, and the former may be called fixed, although there is provision for adjusting its position as required. The 25 vertical wires were conveniently named *A, B, &c., to Y*, the central one being *M*: their mean distance apart is about  $36''\cdot6 = 2\cdot44$  equatorial seconds, and the groups are separated by double intervals. The micrometer head (which is hidden in Plate I by the lamp stand) is comprised of two plates, one graduated to show revolutions, and the other

to indicate divisions, of which there are one hundred in the revolution: the two plates are connected by a set of toothed wheels. The value of a revolution was found to be almost identical in the two instruments, *viz.*,  $1^{\circ} = 33^{\circ}75'$ . The micrometer head is protected by a cap, which, being screwed on after setting to a particular reading, insures it against being accidentally moved, and there is a small window of talc through which the setting can be inspected, lest it should have been disturbed in applying the cap, which is not an unlikely contingency. This setting is of great importance, as upon it the collimation of the telescope depends. A screw (which is also hidden in Plate I) is provided for moving the eye-piece rapidly across the vertical wires during observations, so that the star may be kept close to the centre of the field. The set of eye-pieces comprises direct eye-pieces of various powers, with prisms for oblique use, and a Bohnenberger eye-piece, *A*, Plate I, for use with the mercury trough. The latter eye-piece has been invariably used for all work, including star transits, its shape being convenient for the observation, in a sitting posture, of stars close to the zenith.

Two kinds of wire illumination are provided:—*1st*, the ordinary dark wires in a bright field; and *2nd*, bright wires in a dark field, the arrangement being as follows:—A lamp is placed opposite one end of the transit axis, which is perforated and fitted with a lens, whence that end is designated the “Illuminated Pivot”, a term constantly used to define the position of the instrument. When observing, a second lamp, though not required, is always placed opposite the other end of the axis to neutralise any effects of heating on the instrumental adjustment; see Plate I. In the centre of the axis there is a light plate, revolving on an axis at right angles to both telescopic (optical) and transit axes, (cut out in the centre so as not to interfere with rays from the object glass) and capable of being moved through an angle of  $45^{\circ}$ , by a rod passing along inside the tube of the telescope with a handle projecting close to the eye-piece. In the centre of the opening in this plate, and therefore at the intersection of the optical and transit axes of the telescope, a small black glass reflector is placed at the end of a fine supporting arm. When the plate is inclined at  $45^{\circ}$  to the transit axis, the light from the illuminating lamp is reflected directly on to the wires by this small reflector, and the result is a bright field with dark wires. When the plate is turned so that its plane coincides with the transit axis, the light of the illuminating lamp is intercepted by a set of four prisms which are attached to the plate, and reflected towards the eye-piece, between the telescope tube and an inner tube provided for the purpose; these four sets of rays converge slightly, so as to strike upon four prisms which are attached to the frame carrying the wire diaphragm, two on each side of the telescope, slightly above the plane of the wires. The latter prisms again reflect the light at right angles, so that the rays are brought nearly into the plane of the wires which thus become illuminated by the light from the prisms on each side, the field remaining dark. Both kinds of illumination are fairly satisfactory.

There are two setting circles, *B*, *B*, attached to the tube of the telescope, one on each side near the eye-end, each  $7\frac{1}{2}$  inches in diameter: they are graduated to 20 minutes, with verniers reading to 1 minute, and each is provided with a coarse level. These circles are not permanently fixed to the telescope tube, but can be turned round and clamped in any position, which admits of a change of adjustment for setting by declinations direct, or by zenith distances, &c., when the instrument is set up for use at a new station. There is no provision for clamping the telescope when set.

The object glass is fixed in its cell, so as to be pinched at three points only; and the cell, instead of being screwed into the telescope tube, has close contact with it only at three equidistant points where it is attached by screws, an arrangement which admits of the object glass (complete in its cell) being put on in three different positions.

The frame of the telescope consists of three principal pieces, *viz.*, the axis, *C*, the object-half, *D*, and the eye-half, *E*, which pack separately for travelling. The shape of the axis is a central cube of  $9\frac{1}{4}$  inches side, supported by conic frusta of  $9\frac{3}{4}$  inches axial length, and  $9\frac{1}{4}$  inches in diameter at their junction with the cube, tapering to 3 inches diameter, and terminated by enlarged cylindrical shoulders,  $8\frac{3}{4}$  inches diameter and  $2\frac{1}{4}$  inches wide, into which the steel pivots are fixed, the axis having been shrunk on to them. The pivots are 1.9 inches diameter, perforated by an opening 0.9 inch diameter, and they project 1.9 inches from the axis shoulders. The total length of axis is thus 37.3 inches, while its length from

shoulder to shoulder is 33.5 inches: the thickness of the metal is about 0.37 inch throughout the cube and cones which were cast in one piece, the cube being strengthened by internal ribs. The conical parts were turned both inside and out to ensure as perfect symmetry as possible. The weight of the axis is about 65 lbs. Of the four faces of the cube parallel to the axis, one pair are perforated by openings of  $3\frac{1}{4}$  inches diameter, to allow of inter-collimator observations while the transit telescope is in position. These openings can be closed with caps, *F*, Plate I, and they are crossed by spokes which support the illuminating plate already described. In the other pair of faces openings of 6.8 inches diameter are cut for the attachment of the telescope half tubes.

The two halves of the telescope are each attached to the axis by 12 powerful steel bolts, which pass through a flange at the base of each tube, *G*, *G*, Plate I,  $\frac{1}{4}$  inch thick and projecting 0.7 inch, and screw into the metal of the cube. Each tube is further steadied by its flange fitting into a sunken annulus cut in the face of the cube. The two half tubes are quite plain, except that about  $1\frac{1}{2}$  inches from the base of each, brackets, *H*, *H*, Plate I, are cast upon them to support levels, which for reasons given in Vol. IX have not been used. The object-half is about 2 feet  $8\frac{1}{2}$  inches long from its base to the outer surface of the object glass, and weighs (with dew cap but without levels) 32 lbs. The dew cap, *K*, is 6 inches long, increasing the length of the object-half of the telescope to 3 feet  $2\frac{1}{2}$  inches, or 3 feet  $7\frac{1}{4}$  inches from the (transit) axis of rotation to the end of the dew cap.

The eye-half tube is only 1 foot  $10\frac{3}{4}$  inches long from its base to where it is cut off for the attachment, by four brass screws, of the "eye-end", *L*. The eye-end is composed of two concentric tubes to allow of the focussing adjustment which is performed by two opposing screws acting on a stud, *M*; it is 6 inches long measured to the plane of the wires,  $3\frac{3}{4}$  inches diameter, and weighs 6 lbs. The weight of the eye-half altogether (without levels) is 40 lbs. The total weight of the telescope proper is thus  $65+32+40=137$  lbs.

The pivots rest on nearly semi-cylindrical bearings, *N*, of gun-metal, of the same length and diameter as themselves, but cut away in the lower part so that there is contact only on two arcs of about  $60^\circ$  each. The under surface of these bearings is spherical, fitting exactly the upper surface of the beds, *P*, *P'*, on which they rest, and to which they are loosely attached by a bolt passing through a slotted hole; so that the whole forms a universal joint, which allows the bearings to adjust themselves under the weight of the telescope, and insures the equal bearing of the pivots throughout their length. Again, each of these beds rests on a lower or foundation plate of iron, *Q*, *Q*, which lastly are placed on the masonry piers, *R*, *R*. Each foundation plate *Q* rests on three feet, projecting very slightly below its lower surface. One pivot bed, *P*, has three foot-screws by which the level of the transit axis is adjusted, and the other *P'* has a provision, *S*, for the adjustment in azimuth. The pivots are protected from dust by well fitting caps, *T*, *T*. The weight of each pivot bed with foundation plate is about 40 lbs., thus bringing up the total weight of the telescope complete to  $137+80=217$  lbs.

### 3.

#### *Adjusting Telescope and Collimators.*

Each transit telescope is provided with a small, light telescope of 9 or 10 inches focal length, supported by an axis of the same length as that of the large telescope, the object of which is to facilitate the adjustment of the collimators to their proper places before the transit telescope is put in position. This small telescope has a level attached, so that the bearings of the transit telescope can also be approximately levelled before placing the large telescope upon them.

With each transit telescope is an excellent pair of collimators, each having an object glass of  $2\frac{1}{2}$  inches diameter and 24 inches focal length. One of each pair is furnished with a powerful micrometer in the eye-piece for measuring horizontal displacements; the other rests on circular bearings on which it can be turned round its optical axis, and it has a good striding level, by applying which during such

rotation the line of collimation can be levelled, and thus the exact horizon of the transit telescope may be determined. This is a matter of some convenience, as it allows of the setting circles being exactly adjusted for the latitude of a new station without delay. A peculiar feature about the collimators is the following arrangement, designed to prevent lateral disturbance owing to change of temperature. The instrument is really supported on only two legs under its axis, while it is merely steadied by a third leg projecting to one side, and attached to the instrument by a hinge allowing of motion in a horizontal plane. Of the two legs under the axis, one rests on its bed in a fixed position, while the other is allowed to move freely in the line of the axis; the foot of the third leg is allowed to play on its bed in any direction. Thus when a movement of the feet is rendered necessary, by a change of the dimensions of the instrument relatively to its supporting pillar owing to a change of temperature, it is assumed that it will take place in the line of the axis. If the instrument rested as usual on three feet equally, the direction of such a movement would altogether depend on the friction between the feet and the pillar. The idea is an ingenious one, and the stability of both collimators even under extreme variations of temperature has been found most satisfactory, a result which may fairly be supposed to be due, at all events in part, to this novel construction.

#### 4.

##### *The Chronographs.*

The chronographs were made by Messrs Eichens and Hardy of Paris, the latter taking charge of the electrical arrangements: they are exactly alike, marked by the makers *A* and *B* and one is shown in perspective in Plate II, to which all the references in the following description apply.

The instrument may be said to consist of three parts, all supported by a rectangular foundation plate of iron furnished with three foot-screws for levelling:—

- 1st. The clock work, *A*, for driving and regulating;
- 2nd. The revolving drum, *B*, carrying the paper on which the record is impressed:
- 3rd. The table, and carriage, *C*, carrying the recording styles.

The regulator is of a novel construction designed by M. Foucault. It consists of a pair of governor balls, *D, D*, connected by a train of toothed wheels with a small fan revolving on a vertical spindle (at the rate of about 30 revolutions per second) inside a fixed cylinder in the circumference of which little windows are cut for the passage of air. An outer cylinder, *E*, with a corresponding set of windows, fits closely over the fixed one, and is connected with the governor balls in such a way by a rod, *F, F*, that, as the latter rise owing to an increase of speed, the outer windows come into coincidence with the inner and allow the air to pass through, whereby the resistance offered to the fan is increased and the rate of the machine checked. The two instruments present a curious difference in the action of this regulator, the cause of which could not be traced by the maker himself. In one, *B*, the outer fan-cylinder never rests for an instant, but maintains a constant state of oscillation, while in the other, *A*, it preserves one position pretty steadily for a while, and then shifts to another.

The governor balls revolve on a vertical spindle which rests on a lower cup-bearing just below *Q*—hidden in Plate II by the driving wheels—and works in an upper bearing in the bar, *W*, where a cup with covering cap is provided for oil. The bar *W* screws on to the upright pillars, *X, X*.

The connection of the governor with the outer fan-cylinder is effected by the light rod *F* in the following manner:—An upright arm, *G*, is mounted on pivots, which are hidden in Plate II by the drum of the driving weight, and carries counterpoises—also hidden—which press its upper end towards the governor. The upper end is forked, and between the members of the fork the rod *F* is pivoted. Another rod, *H*, is similarly pivoted, and extends to the upright spindle of the governor, where it carries a round headed adjustable pin, *I*, which works in a collar fitting round the spindle, and attached to the governor balls so that it revolves with them, and moves up or down the spindle according as the balls

rise or fall with the increase or decrease of speed. In the middle of *H* at *J* there is an adjustable pin which fits into a hole in the end of a yoke, *K*, thus affording a movable joint at *J*. *K* is itself pivoted on the fixed frame-work, *M*, at its other end, and affords a tie to the rod *H* of such a nature, that so long as the joint at *J* does not rise or fall, the arm *G* must maintain a constant position.

The outer fan-cylinder *E* is hung on a bearing above it—exactly over the vertical spindle of the fan—by an open frame-work, attached to which is a small projecting horizontal tongue, *L*, the position of which is adjustable. The rod *F* rests on *L* and has a small pin which fits loosely in a hole in *L*, and thus provides a movable joint between the two. Now if the governor balls fly out owing to increase of speed, the collar with the pin *I*, and consequently also the pin at *J*, must rise, and the upper end of *G* will be brought forward towards the fan-cylinder carrying with it the rod *F* which thus by its action on *L* causes the cylinder to revolve. *L* can be adjusted until the best position of the windows in the outer cylinder relatively to those in the internal fixed cylinder has been secured.

The rod *H* is continued beyond *G*, and carries at its extremity a counterpoise, *N*, which can be screwed along *H*—through a small range—and clamped wherever desired, thus affording a means of regulating the rate of the instrument, that is to say, its mean rate as distinguished from the uniformity of rate, the regulation of which is effected by the governor and fan. The mean rate will increase as the position of *N* is shifted towards the governor, and *vice versa*; for the nearer *N* is to the pin *I* the less will be the pressure of the latter upwards against the collar, and therefore the greater must be the rate of revolution of the governor to cause the balls to rise. The collar is fixed to the lower end of a cylinder, which fits round the spindle and runs over it on two sets of friction rollers, *O*, *O*, between which the jointed arms, *Y*, *Y*, are attached, connecting the cylinder with the balls *D*, *D*. On the spindle are clamped two stops, *P*, *P*, to limit the range of the cylinder—and therefore of the balls and collar; and when the instrument is going properly the cylinder must always oscillate between these stops without touching either. This condition is ensured by varying the amount of the driving weight which is composed of separate discs of lead, while the consequent rate of revolution is regulated by the counterpoise *N*.

The motion of the governor is communicated to the fan by a chain of toothed wheels as follows:—At *Q* there is an enlarged toothed surface on the spindle which gears on one side with the last driving wheel, *R*; and on the other with a small toothed wheel, *S*, revolving in a horizontal plane. Just below *S*, on the same axis—to which it is firmly but not rigidly connected—is an exact duplicate of *S* (hidden in Plate II) which runs free of *Q* owing to its lower level, and gears on the other side with *T*, a set of teeth on the spindle of the next toothed wheel, *U*. The teeth *T* are on a lower level than the upper wheel *S*. Lastly the wheel *U* gears with a set of teeth on the spindle of the fan, the lower bearing of which is at *V*. The object of the duplicate wheel *S*, is to save the machinery from a dangerous jar in case of sudden stoppage, such as would occur if the cord of the driving weight were to break. As has been stated a slight relative movement of the two members of *S* round their common axis is allowed for, which is regulated by a stiff spring so as to break the jerk.

The lower bearing *V* of the fan-spindle requires careful adjustment which, however, when once obtained may be looked upon as permanent, unless intentionally disturbed. It consists of a conical cup bearing, with a relieving capstan-headed screw under the point of the spindle, which can be raised or lowered with reference to *V*, while the whole bearing can also be raised or lowered, and clamped by screw nuts. Its position should be such, that vertical shake of the spindle is just perceptible to the touch: the least jam preventing such shake will stop the instrument instantly. When proper adjustment of all the parts has been secured, the great secret to ensure a good rate is oil—plenty of oil on all the bearing surface where there is friction under rapid motion. The lower bearings of all the vertical spindles should be plentifully supplied, and as they are all cup-shaped the supply remains pretty constant: their upper bearings also require occasional touching. But the most important point is the contact between the pin *I* and its collar, where from its situation the oil will not remain long. In nineteen cases out of twenty, when the rate of the instrument decreases, a drop of oil between the pin and the collar is sufficient to set it right again. Occasionally the fan makes a screeching noise, when the rate will at once fall off: this is a sign that a touch of oil is wanted on the upper bearing of the fan-spindle.

When packing the instrument for travelling, the system of arms *F*, *G*, *H*, are removed in one piece by loosening one of the pivots on which *G* works; the yoke *K* and the fan-cylinder *E* are also taken off. The bar *W* is then taken off the upright pillars *X*, *X* which allows of the removal of the governor in one piece, after which *W* is replaced. The driving weight is of course taken off and the cord wound up. The whole of the clock-work is enclosed when the instrument is at work in a light iron-framed cover to keep out dust, which is not shown in Plate II. It is fitted with a glass roof and glass windows at the sides, which latter draw out and allow the hands to be inserted for putting the clock-work together, or taking it to pieces, or for necessary adjustments, and thus the removal of the cover is never necessary. The winding arbor, *Z*, protrudes through a hole in the cover to admit of the weight being wound up. On the other side—not visible in Plate II—a handle also passes through the cover, and acts by a screw on a clamp fitted round the axis of the wheel *R* by which the instrument can be stopped. When supported on its usual wooden stand without any hole in the ground for the descent of the driving weight, the instrument will go for about 50 minutes; but the cord is long enough to admit of continuous motion for about 3 hours, if the weight is allowed to descend.

The drum is  $11\frac{3}{4}$  inches wide, 3 feet 1.6 inches in circumference and weighs about 45 lbs. Each instrument has three spare drums. The paper used is  $11\frac{3}{4}$  inches wide, and about 3 feet  $2\frac{1}{4}$  inches long; it is put on with common paste. The direction of revolution is shown by an arrow.

The connection of the drum with the driving clock-work is carried out as follows:—The axis of the last driving wheel *R* which gears with the governor at *Q*, and is therefore directly controlled by it, is prolonged through the protecting cover at *a*, to an outer bearing which is not seen in Plate II, being hidden by the supports of the drum. On *a* there is an enlarged fixed nut,  $\beta$ , with teeth along the edge of its vertical surface, and there is also a movable nut,  $\gamma$ , with similar teeth, which can be made to gear with  $\beta$  or not at pleasure, by means of a lever (invisible in Plate II) which works on the pin,  $\delta$ . Rigidly attached to  $\gamma$  is a toothed wheel which gears with the teeth round the edge,  $\epsilon$ ,  $\epsilon$ , of the drum. When  $\beta$  and  $\gamma$  are disconnected by the lever the drum is cut off from the clock-work, and can be turned as desired by hand. The clamp to stop the clock-work, which was referred to above, acts on the axis *a*.

The axis,  $\zeta$ , of the drum is very strongly attached to the cylindrical portion by an interior diaphragm, and is supported on bearings carried by stout uprights, one of which is seen in Plate II at  $\eta$ . The other end of the axis  $\zeta$  terminates in a toothed wheel (invisible in Plate II) exactly similar to the toothed wheel,  $\theta$ , with which it is connected by a third similar wheel,  $\kappa$ , so that the drum and  $\theta$  revolve in the same period. The wheel  $\kappa$  can be drawn out on its axis to disconnect  $\theta$  at pleasure from the drum.  $\theta$  is fixed on the end of a long screw-spindle which runs through the table,  $\lambda$ ,  $\lambda$ , and is seen projecting at  $\mu$ .

The carriage *C* rests on the table  $\lambda$ ,  $\lambda$ , and is furnished with a clip projecting downwards and grasping the screw-spindle,  $\mu$ , so that as  $\theta$  and  $\mu$  revolve, the carriage travels along the table from left to right. The clip can be released by the handle,  $\nu$ , when the carriage may be moved by hand and placed where desired. The carriage rests on three wheels,  $\pi$ ,  $\rho$ ,  $\rho$ , and is steadied by three others acting upwards against the sloped under surfaces of the table  $\lambda$ ; only one of the latter is visible at  $\sigma$ , the other two being behind the table. Of these wheels the position of  $\pi$  only is adjustable, its axis being carried by an arm with a hinge at one end and a raising or lowering screw at the other, by means of which  $\pi$  can be pressed down with more or less force against the table. Such pressure should be employed as to bring the lower wheels,  $\sigma$ , into close contact with the table, so that there may be no perceptible shake of the carriage when tested by hand. All these wheels have adjustable bearings for their own axes, and if ever the carriage is taken to pieces for cleaning, it is particularly necessary to put it together again carefully without changing the position of similar pieces, or a proper fit will not be obtained.

The carriage bears the recording apparatus shewn in Plate II. A slab of wood, *a*, is attached to the metal plate, *b*, and is connected with the carriage by hinges at, *c*, *c*. A screw (invisible in Plate II) below *a* provides a raising or lowering adjustment to regulate the pressure of the pens on the paper. On *a* are mounted two pairs of electro-magnets, *d*, *d*; *e*, *e*, with adjustments for changing their position, and each pair has an armature, *f*, *f*, carried by arms, *g*, *g*, the ranges of which are regulated by suitable screw-studs on the upright bar, *h*. A spring acts against each armature pressing it away from the core

of its magnet. The armature arms are pivoted on an upright arm similar to *h*, which cannot be seen in Plate II, being hidden by the coils *d, d* beyond which they extend over the drum, carrying the two pens, *i, j*, at their extremities. The arms are jointed, and have other means for adjusting the pens as desired. The pens themselves are specially made for chronographic recorders, so as to carry a large supply of ink.

From the ends of the coils of each electro-magnet two silk covered spiral wires, *k, k, k, k*, are carried down to binding screws on the stand of the chronograph at *l*, whence other wires, *m, m, n, n*, are led away to the batteries, &c.; so that one pair *m, m* completes the clock circuit, and the other *n, n* that in which the observer's key is placed. The effect of a signal by break of either circuit is therefore to demagnetize the coils in that circuit and release the armature, which is then jerked away by the spring provided for that purpose, causing the pen to make an outward jerk, *i.e.*, away from the other pen.

The pens can be adjusted to trace parallel lines as near together as desired, or actually coincident—the latter being generally the best—the signal jerks being made outwards; but they cannot follow each other at a much less distance than half an inch, representing about  $1\frac{1}{2}$  seconds of time. This difference is called the “Pen Equation”, and is always applied as a correction in the reductions.

## 5.

### *The Electrical Arrangements of the Chronographs.*

The Electrical Apparatus is collected on a board called the “Commutator board”, and consists of (1) a commutator by means of which the various changes in the connections are made as required from time to time; (2) a translating relay which is used for the transmission of clock or other signals through the line to the far station; (3) a receiving relay required for receiving the signals from the distant station and passing them on to the chronograph, if for record thereon, or to the sounder, if for conversation; (4) a talking key, and (5) a sounder for purposes of conversation and conventional signals in connection with the work. The commutator board is conveniently placed close alongside of the chronograph on the same stand, and the local batteries are arranged on shelves below it. The exact way in which these instruments are used will be more fully explained in Chapter III.



## CHAPTER II.

### OBSERVATORY ARRANGEMENTS, AND PREPARATIONS FOR OBSERVING AT A STATION.

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#### 1.

##### *Observatory Accommodation.*

The observers always carry about with them portable observatories, consisting of canvas roof and walls on a wooden frame-work with shutters and curtains to admit of a meridional aperture from the ground upwards. These observatories are sufficiently large to hold the transit telescope only; the chronograph, clock, &c., are otherwise provided for by building proper shelter, if suitable accommodation in existing buildings is not available as it generally is. A small room of about  $8 \times 10$  feet is all that is absolutely required for this purpose, though more space is convenient. This room should be as close as possible to the observatory tent—say within 10 yards—because the observer is constantly called on to visit one from the other. For the protection of the clock from changes of temperature the shelter should be as substantial as may be.

#### 2.

##### *Buildings for Instruments.*

The necessary preparations for observing at a station—assuming the existence of a clock room—are confined to building pillars for the transit telescope and its collimators, and one for the clock to be hung against when it is not convenient to hang it against a wall of the room. All these pillars are founded 2 or 3 feet below the ground level, according to the nature of the soil; and the excavations for the foundations are made slightly larger in plan than necessary for the pillars, so that when these are built there is no contact above their base, and insulation from ordinary tremors is ensured. The vacant space thus left round the pillars is afterwards filled in with dry sand.

## 3.

*The Transit Pillars and Observatory Fittings.*

The transit pillars (Plate I) are about  $24 \times 18$  inches in horizontal section from their base to about 3 feet 2 inches above the ground, above which they are only  $13\frac{1}{2} \times 13\frac{1}{2}$  inches, the inner face being all in one plane, thus leaving a ledge round the other three sides: the small upper portion is about 2 feet high, making the total height of these pillars 5 feet 2 inches. They are 2 feet 4 inches apart, and are always built of brick, and capped with slabs of stone which are carried about with the apparatus: the foundation plates of the instrument rest on the upper surface of these slabs, which is polished so as to allow the plates to be moved about in making the first rough adjustments. After these adjustments have been approximately secured, it has been found advisable to put a disc of paper soaked in beeswax under each foot of the bed plates, to prevent accidental movement on the smooth surface of the stone. No very great accuracy is required in the levelling of the stone caps when building, because the universal motion provided in the pivot beds allows them to adapt themselves to considerable variations in that respect. When the soil is yielding it may be advisable to base both pillars on one foundation, so as to distribute the pressure, but on firm soil the pillars may more conveniently be quite disconnected. The foundation pits are always connected by a narrower excavation about 18 inches deep, which contains an insulating layer of dry sand of at least a foot in depth, on which the mercury trough is placed in position for observation. The trough requires to be carefully covered to keep out sand and dust, and is further protected by a wooden platform—on which the observer's feet rest when observing zenith stars—with an aperture over the trough, which can be opened or closed at pleasure. Even with the greatest care to protect the mercury frequent filterings are necessary which however is not of much consequence, as the operation is always performed by native assistants who seem to take considerable pleasure in it.

A pair of perforated iron staples are built into the masonry of the upper, or smaller, portion of each transit pillar, on each of its north and south faces, for the purpose of supporting upright iron bars passed through the perforations, which are left just clear of the brick-work. These bars rise about 3 feet above the pillars, and carry a moveable table to support the lamp which illuminates the Bohnenberger eye-piece when mercury observations are being taken, (Plate I). Only one pair of upright rods, one on each pillar, is necessary at the same time—or indeed at any time—but it is a convenience for the observer always to have the instrument in the same relative position to himself when making mercury observations, to ensure which he, and therefore the lamp and its supports, must change positions from the north to the south side of the instrument, or *vice versa*, when the latter is reversed on its bearings. Similar staples let into the outer (east and west) faces of the pillars support stands for the axis lamps, both of which should always be kept in position during observation to cancel as far as possible any effects of unequal heating.

The equipment of the observatory tent is completed with a set of steps on which the observer stands for mercury observations, (Plate I), two or three stools on which he sits while taking transits, and a light wooden frame, by means of which four men can lift and reverse the telescope on its bearings whenever desired with the greatest ease, and generally with hardly appreciable disturbance of azimuthal adjustment. A table and chair for an observatory assistant, who acts as recorder, are also provided.

## 4.

*The Collimator Pillars.*

The collimator pillars are about  $30 \times 18$  inches in plan, founded generally from 2 to 3 feet below the ground surface, and insulated as in the case of the transit pillars. Their height is such as to bring the axes of the collimators and that of the transit telescope as nearly as possible into the

same horizontal plane. They are built about 3 inches to the west of the meridian of the transit telescope and generally about 15 feet distant from it. This interval of 3 inches from the meridian is introduced, in order that the steadying foot of the collimator may not fall inconveniently near the edge of the pillar. Light and easily moveable frames are provided to cover the collimators and protect them from the weather.

## 5.

### *The Clock Pillar.*

The clock pillar is founded and insulated like the others. The lower portion is generally about  $36 \times 24$  inches up to within a few inches of the ground level, where it is decreased to  $24 \times 24$ , leaving a ledge 12 inches wide in front, and carried up at these dimensions for about 6 feet 8 inches. The ledge is convenient for supporting the clock when about to be bolted to blocks of wood, which are built into the pillar for the purpose. It is very important that this pillar should have weight or rigidity sufficient to withstand the oscillation of the pendulum without vibration, which would have an immediate effect on the clock rate.

All the pillars should if possible be built some little time before they are required to allow for settlement and thorough drying, and great care should always be bestowed on the 'bond' of the brick-work.

## 6.

### *Chronograph Stand.*

A wooden stand is carried about for the chronograph, which also accommodates the commutator board and the batteries for the clock, pen, and relay circuits. The line battery is generally in the Telegraph Office; but occasionally accommodation for it must be provided, which however gives no trouble as, if convenient, it may be placed outside the building in packing cases.

## 7.

### *Arrangement of Wires.*

The most convenient arrangement of the numerous connecting wires required, has been found to be as follows:—In the observatory tent, where only two wires are necessary, they are brought down through the roof to the outer face of one of the pillars, then round the pillar to its inner face, where they are finally fixed, leaving sufficient free end for convenient attachment to the observer's key, or tappet, to carry which when not in actual use a small shelf is affixed to the inner face of the pillar. Or as is sometimes more convenient, only one wire need be introduced through the roof in this way, while the other may be led back under the surface of the ground as shewn in Plate I. In this case neither wire need necessarily be covered, except the ends of one just inside the observatory and clock room, and this plan therefore is a good one in case of economy of covered wire being advisable. In the clock room all wires—including those to the clock, to the observatory, to line and to earth—are carried over head and collected in one bundle before they are brought down to the commutator board through a convenient hole, in which they are first passed as a bundle and then separated and brought up to their respective binding screws. Should the line wire be brought directly into the clock room the necessity of having a lightning discharger must not be overlooked, and in this case an efficient earth-plate must also be provided. When

the observatory is close to the Telegraph Office, the line wire and earth connections can be made through the office commutator, and neither earth-plate nor lightning discharger are specially required. As a rule it is most convenient to make all local, *i.e.*, observatory and clock room circuits of metal throughout, avoiding the necessity of an earth-plate for them.

## 8.

### *Batteries.*

The "Menotti" battery, which is the form adopted by the Indian Telegraph Department, is used for all purposes, and has the advantages of great constancy while it is easily kept in order. It is not so compact or portable as some other forms; but this is of small consequence in India, as it can be obtained by giving a few days notice at any Telegraph Office and need not therefore be included in the portable equipment. The number of cells required for local purposes in each observatory may be put at about sixteen. A special line battery is only required when the observatory is some distance from the Telegraph Office, which can generally be avoided, and its strength depends on the length and condition of the line in use. Ten cells are considered sufficient for every hundred miles between the stations.

## CHAPTER III.

### SYSTEM OF WORKING DURING SEASONS 1881-82, 1882-83 AND 1883-84, AND THE PROGRAMME OF OPERATIONS.

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#### 1.

##### *The System on which the Observations were taken.*

There are various ways in which an equipment, such as that described in the preceding pages may be employed in obtaining the difference of longitude of two stations connected by a telegraph line:—(1). Each clock may graduate the chronograph at its own station, and the observers (first one and then the other) may, by means of their tappets, send a number of signals at arbitrary times to be recorded on both chronographs. The differences of the two clocks are thereby known, and if the error of each is determined by the corresponding observer by local transits, the true difference of time and therefore of longitude is obtained: (2). The observations of transits at one station (each alternately) may be transmitted through the line, so that those taken at both stations are recorded on the same chronograph in terms of the same clock: (3). The signals of one clock (each alternately) may be transmitted, so that a record of the same clock time is obtained on both chronographs, while at the same time transits are recorded locally at each station; and (4). At both stations (each alternately) the two clocks may be made to work the two pens, thereby giving what is called a “Direct Comparison of Clocks”; their errors being determined before or after the comparison by local transits (or preferably both before and after), the difference of longitude follows at once. Of these methods the first two being inconvenient in some respects have not been adopted. The other two have been employed on all arcs contained in this volume with the exception of the last four where the third method only was used. The alternation of the clocks is necessary to eliminate the quantity represented by  $\rho$  which is the retardation of the electric current along the line wire and through the relays. The elimination is not complete, but the residual must necessarily be a very small quantity. In the Appendix will be found some remarks on this subject.

## 2.

*Programme of Each Night's Work.*

The programme was always laid out by sidereal time, so that the same stars were observed night after night, a point of considerable importance both as regards convenience in the observatory and advantage in reducing the work, especially with reference to clock rates. Six complete nights' work has been usually considered sufficient, though this number has been often exceeded according to the observers' opinion of the trustworthiness of their work. Reversal of pivots has been always adhered to on systems which differed at different times and which will be described in detail in the separate accounts of each year's work. Two pairs of circumpolar stars for determining the deviation of the telescopes were included in each night's programme and always observed when possible.

## 3.

*The Electrical Arrangements of the Observatories.*

The electrical arrangements for securing the chronographic record and communicating between the stations, are as follows:—Each pen magnet is placed in a short circuit, with a weak battery, which can be connected at pleasure by means of the commutator, (1) with the clock, (2) with the observer's tappet, and (3) with the armature circuit of the receiving relay which is in connection with the line wire. In the first case the pen records the local time and is called the "Clock Pen"; in the second it is used for transits or other observations and is known as the "Observer's Pen"; and in the third it records any signals transmitted from the distant station and repeated by the receiving relay. In the last case the signals are generally those of the distant clock, used either for the comparison of clocks or for the observation of transits. A second relay is employed for the transmission of signals through the line by "translation", *i.e.*, the relay coils are placed with a weak battery in a local circuit, into which the clock, or the observer's tappet, can be introduced as required by means of the commutator, and the armature of the relay is in circuit with the line battery and line and thus passes on the signals to the distant station.

## 4.

*Retardation of Signals.*

It is thus evident that the retardation of a signal, passing, say, from one clock to the distant chronograph, is composed of three parts:—(1) due to the translating relay, (2) due to the line, and (3) due to the receiving relay, including the pen action, at the distant station. A similar return signal is affected in the same way by different retardations but of like nature, because the two translating relays are of the same pattern and similarly adjusted; while the same is true of the receiving relays, and of the pen actions. The line wire of course remains the same in both cases, but there are no means of determining whether the rate of signal remains constant in both directions, which fortunately is a matter of no practical importance on land lines from the present point of view, however interesting it may be as connected with the science of electricity. The relays used were all of the ordinary polarized pattern, those for translation being of much smaller resistance than those for receiving line signals.

## 5.

*The Pen Equation.*

A point in the management of the chronograph which requires attention, is the distance between the pens in the line of their (apparent) motion, which cannot be conveniently made much less than half an inch, or about the equivalent of 1.5 seconds of time. This difference is called the "Pen Equation," and it has always been deduced and applied as a correction to the readings. To guard against errors in the assumed value of the equation a systematic change of pen duties has always been observed: for instance, in the middle of every set of transits the clock and observer's pens are changed, so that for one half of the observations the equation is positive, while for the other half it is negative; and similarly when comparing clocks the pens are exchanged between the local and distant clocks during each comparison. The value of the pen equation is determined each night by two distinct methods, one value results from the reduction of the clock comparisons, and the other by actual measurement of the distance between the corresponding seconds on the chronograph sheets, when both pens are actuated at the same time by one and the same clock.

It is necessary to bear in mind that the actual pen equation is the absolute linear distance between the pens, and as this has to be converted into seconds of time before being applied as a correction to the observations, the conversion must therefore be dependent on the rate of the chronograph. Hence, when transcribing the chronographic record, that rate must be carefully watched with a view to applying a special correction to the pen equation, in cases where the variations of the rate exceed certain limits.

## 6.

*The Commutator Board.*

A simple outline plan of the commutator board is given in Plate III on a scale of about one third real size, while symbols for the clock, idiometer, observer's tappet, chronograph recording pens and the several batteries, &c., are added, in order that the various wire circuits may be traced. On the commutator board, *C, C*, is the commutator itself, *R, R*, the translating relay, *S, S*, the sounder, *D, D*, the talking key, and *E, E*, a bar which is used as an "earth"; *F* is the receiving relay, and *G* a tell-tale relay which is so arranged as to cause the sounder to work while the clock beats are being sent to the distant station, a stoppage of the transmission of the signals being thus at once notified by the cessation of the sounder's action. Permanent wire connections between the different instruments on the board are shown by double lines; and those wires which are only temporarily attached at each station are indicated by single lines.

The commutator *C, C*, and the switches *M, N*, are each composed of plates of brass which are mounted on blocks of ebonite so as to be perfectly insulated from each other: the separate plates are shaded. The circular indentations, with numbers for reference, indicate holes between the plates which can be filled at pleasure by the insertion of pegs, so as to bring two plates into connection. The letters on the several plates indicate the parts of the apparatus with which they are connected, either permanently, or by wires attached temporarily to binding screws provided for the purpose, all of which can be traced in Plate III. Thus the plates marked *A<sub>c</sub>*, *B<sub>c</sub>*, and *R<sub>c</sub>* are connected by wires to the copper poles of the batteries for *A* and *B* pens and the translating relay respectively; while *A<sub>z</sub>*, *B<sub>z</sub>*, and *R<sub>z</sub>* are similarly connected with the zinc poles of these batteries. *K* is connected with a wire which passing through the break-circuit apparatus of the clock is carried to the earth *E, E*. *I* is similarly connected with the star-frame of the idiometer; while a second wire attached to the wire-frame of the same instrument is carried to the earth. *O* is intended for the observer's tappet—or signalling key—and can be

connected with the one used at the transit telescope, or at the idiometer, as required, by means of the switch *N*. The line wire is attached to *L*. The plates similarly lettered, *viz.*, three marked *B<sub>z</sub>* and two marked *A<sub>z</sub>*, are connected by bars passing underneath the ebonite mounting. The plate marked *R<sub>C</sub>* which is inconveniently placed for the attachment of a temporary wire, is permanently connected to the binding screw marked *R<sub>C</sub>*. The two plates without any marks are simply dummies through which other plates can be connected. The long plate marked *E'* is connected with the earth *E*, *E*, and the latter is furnished with a number of binding screws for attaching several wires. The latter plate is called the 'earth' because it is introduced as a convenient means of completing the commutator local circuits which are all purely metallic. For the purpose of line signalling a real earth-plate is required, and *E*, *E* is connected therewith as shown.

The following are the ordinary combinations effected by the commutator in the course of observations, the connections of which can be readily traced by reference to Plate III. The pegs used for completing the various circuits are numbered consecutively throughout the commutator and the switches *M*, *N*.

No. I.	The clock recording time by pen <i>A</i> , ... .. Pegs	6, 4, 8.
	„ „ „ <i>B</i> , ... .. „	2, 10.
„ II.	Determination of pen equation, clock time being recorded simultaneously by both pens on the chronograph,	Pegs 2, 14, 8.
„ III.	Observation of transits with local clock—	
	Observer, pen <i>A</i> : clock, pen <i>B</i> , ... .. Pegs	25, 20, 17, 8 : 2, 10.
	„ <i>B</i> : „ <i>A</i> , ... .. „	25, 15, 10 : 6, 4, 8.
„ IV.	Observation with the idiometer—	
	Observer, pen <i>A</i> : clock, pen <i>B</i> , ... .. Pegs	26, 20, 17, 8 : 2, 10.
	„ <i>B</i> : „ <i>A</i> , ... .. „	26, 15, 10 : 6, 4, 8.
„ V.	Clock comparisons, both clocks recording time on the chronograph—	
	Local clock, pen <i>A</i> : distant clock, pen <i>B</i> , ... Pegs	6, 4, 8 : 23, 22, 19, 10.
	„ <i>B</i> : „ <i>A</i> , ... .. „	2, 10 : 23, 22, 18, 8.
„ VI.	Transmitting clock signals for use at the distant station,	Pegs 1, 9.
„ VII.	Observing transits and transmitting clock signals to distant station—	
	Observer, pen <i>A</i> : clock, pen <i>B</i> , ... .. Pegs	25, 20, 17, 8 : 1, 12, 10.
	„ <i>B</i> : „ <i>A</i> , ... .. „	25, 15, 10 : 1, 13, 8.
„ VIII.	Observing transits with clock time received from the distant station—	
	Observer, pen <i>A</i> : distant clock, pen <i>B</i> , ... Pegs	25, 20, 17, 8 : 23, 22, 19, 10.
	„ <i>B</i> : „ <i>A</i> , ... .. „	25, 15, 10 : 23, 22, 18, 8.
„ IX.	For talking or interchanging conventional signals,	Pegs 23, 24.

It will be noticed that in all of the combinations given above the different circuits combined are brought into one simple circuit, so that a break of circuit at any point entirely stops the current in the whole. There is no branching of circuits, which should always be carefully avoided.

The commutator affords the means of measuring the retardation due to the local instruments, by causing the clock time to be simultaneously recorded on the chronograph by both pens, one worked by



the clock direct and the other through the translating tell-tale and receiving relays, which is done thus:—

<i>A</i> pen direct:	<i>B</i> pen through relays,	...	...	Pegs 1, 13, 8: 23, 22, 19, 10.
<i>B</i> „ :	<i>A</i> „	...	...	„ 1, 12, 10: 23, 22, 18, 8.

If the retardations of the receiving relays and of the chronograph pens could be looked upon as respectively equal at the two stations, it is evident that the above experiment would give an exact measurement of the retardation of a transmitted signal recorded on the distant chronograph, only excepting the retardation of the line wire. Unfortunately such equality cannot safely be reckoned upon; but the experiment should prove a useful guide in testing the condition of the adjustments of the local relays.

## 7.

### *Relations with the Officers of the Telegraph Department.*

Throughout the operations all the Officers of the Telegraph Department whose co-operation has in any way been required, have continually shown the greatest courtesy and readiness to give every assistance in their power. In many instances the prosecution of the longitude observations has unavoidably caused considerable trouble in the several Telegraph Offices involved; but this has invariably been cheerfully undertaken, and the relations of the officers of the two departments have always been most cordial.

## 8.

### *Arcs measured during Seasons 1881-82, 1882-83 and 1883-84.*

Diagrams illustrating the arcs measured each season will be found in the detailed account of the operations of each season. It may be remarked here in passing that the system hitherto in force of so selecting the stations for longitude observations as to form triangular circuits, has been adhered to as being the only really reliable means of gauging the accuracy of the results. It will be noticed that several of the arcs were measured in 1880-81 and again in 1881-82. This was done in consequence of the serious magnitude of the circuit errors supposed to have been caused by imperfections in the transit telescopes, more especially in No. 2. In consequence of these imperfections both telescopes were carefully examined and strengthened in the workshops of the Mathematical Instrument Department in Calcutta in the summer of 1882 and for a time gave improved results. Symptoms of the old weakness however having again occurred at the close of the season 1883-84, they were then returned to the original makers for various alterations and improvements.

## 9.

### *Reduction of the Observations.*

An abstract of the observations and the reduction of the results are given for each season separately in tabular form. Full explanation of these tables, and of the methods employed in carrying out the reductions contained therein will be found in Chapter V. All these reductions were made under the superintendence of Lieut.-Colonel (now Major-General) W. M. Campbell and Majors G. Strahan and W. J. Heaviside.

The object held in view in drawing up the tables, was to afford all the data necessary for any reader who might wish to examine the reductions and re-produce the results arrived at. No attempt has been made to assign probable errors to the final values of difference of longitude obtained, because these are not required until the work of combining all the results is undertaken; and any mathematician who may in the future approach that task with a view to investigations of the figure of the earth and local attractions, will probably prefer to compute the theoretical errors for himself, ample data for doing which will be found in the tabular details.

The geodetic elements of the several stations of observation are given in the Appendix, at the end of the tabular matter; and in the case of stations connected with the Principal Triangulation of the Great Trigonometrical Survey of India by special minor triangulation, an abstract of the latter is furnished. A table is added in which the geodetic and the electro-telegraphic values of the several differences of longitude measured are collated for comparison.

## CHAPTER IV.

### PERSONAL EQUATION.

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#### 1.

##### *Method of Determination.*

The relative personal equation of the observers has always been determined by the observation of 'divided transits', in which both observers use the same telescope, one taking the transit of a star over the first ten wires and the other completing the observation of the same star over the last ten wires, whence, by reduction to the central wire, a value of personal equation is at once obtained. This method repeated with numerous stars—the observers alternating their order of observation—affords an excellent value of their relative personal equation. It has long been known that the value of personal equation may be influenced by very slight causes, prominent among which may be reckoned the direction of a star's motion across the field, whether from left to right or right to left, and its apparent velocity. Two distinct equations have consequently been recognized in these observations. If an observer using a diagonal eye-piece seats himself at a telescope with his face to the north, stars will cross the field of view apparently from right to left; if on the other hand he places himself facing south, stars will cross apparently from left to right and in general with faster motion (owing to their lower declination) than in the former case. The term 'aspect' is used in this volume to indicate the direction of the observer's face and therefore of the star's motion, but it does not necessarily agree always with the position of the star with reference to the zenith, because a star very near the zenith may be observed equally conveniently under either aspect. In determining the personal equation therefore an approximately equal number of stars were observed under both aspects, and two separate equations obtained to be applied to transits of stars of N. and S. aspect respectively.

#### 2.

##### *Consequent Precautions.*

In consequence of this twofold equation, it is evident that each star should be observed at both stations under the same aspect, and in the case of stations differing but little in latitude no difficulty

arises; but if the difference of latitude is great, a star which is considerably south of the zenith at one station may be considerably north at the other. It becomes necessary therefore to avoid using any stars within certain limits of declination, whenever the latitudes of the two stations of observation differ by more than  $3^{\circ}$  or  $4^{\circ}$ ; for supposing the stations to be  $m^{\circ}$  apart in latitude, and  $n^{\circ}$  to be the limit (which may be considered as about  $2^{\circ}$ ) within which each observer can conveniently observe a star with a false aspect—*i.e.*, as north when it is really south of the zenith, and *vice versa*—there will be a zone of  $m^{\circ}-2n^{\circ}$  of declination within which no stars can be used. Certain stars close to the zenith were always taken under both aspects, the observer recording the first ten wires in one position and the last ten in the opposite, the object being twofold, *viz.*, (1) to determine the *absolute* equation of each observer for north as compared with south stars—known as his ‘N—S equation’—whereby his observations of the two groups might be made comparable; and (2) to ensure the observation of every star under the same aspect at both stations, where the difference of latitude is small.

### 3.

#### *Employment of the Idiometer.*

A full description of this instrument, designed by Lieut.-Colonel W. M. Campbell, for the purpose of measuring the absolute personal equation of an observer, will be found in Volume IX, Chapter V, Section 9. It was supposed that its employment would act as a check on abnormal variations of personality, and that the results deduced by it might be incorporated with those obtained by the usual method of divided transits. This expectation has not been fulfilled, and for some as yet unexplained reason great discrepancies exist between the two systems, though the variation of idiometer results from night to night is so small as to beget considerable confidence in the stability of the observer’s personal equation, which may be seen by reference to the abstract of the idiometer observations in the Appendix. The actual equations employed in the longitude observations are deduced solely by the method of divided transits.

### 4.

#### *Personal Equation in transcribing the Chronographic Records.*

The chronographic record is transcribed—that is converted into a numerical record—with the aid of a glass scale of diverging lines, by which the position of a star’s transit-signal between two second-signals of the clock can be measured in tenths of a second, while hundredths may be readily estimated by eye. It is evident that there is some room for the effect of a personal equation in this operation, which was guarded against throughout the measurements contained in this volume by the records of both stations being always transcribed by the same person, so as to eliminate any constant equation of reading.

### 5.

#### *Final Remarks.*

The remarks in this and the preceding chapters apply to the operations of each of the three seasons contained in this volume. As the work proceeded, small changes in matters of detail suggested themselves; and to render these clear it will be more convenient to the reader from this point to give a separate account of the work of each season, showing how the experience of each contributed to improvements in the following one.

## CHAPTER V.

### DETAILED DESCRIPTION OF THE METHODS OF OBSERVING AND OF REDUCING THE RESULTS, WITH FULL EXPLANATION OF THE TABLES.

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#### 1.

##### *Instrumental Constants.*

*Wire Intervals.* The whole system of transit wires—twenty-five in number—is attached to the micrometer slide, by means of which the central wire of the system can be placed in a position of no collimation error, or, as is generally more convenient, in a position for which that error has been determined. The usual practice was to observe the transit of each star over the fifteen central wires, but it was a very common occurrence to miss one or more wires; and the custom was frequently varied purposely, for instance, when it was desirable to observe two stars of nearly the same right ascension, the first fifteen of the twenty-five wires were used for the first and the last fifteen for the second star. The combination of these circumstances, *viz.*, the readily adjustable collimation error of the central wire and the frequent variation in the groups of wires over which transits were observed, led to the system of reducing the observation on each wire to the central wire, in preference to using the mean of the wires. For this purpose the equatorial intervals between each wire and the central wire must be known with accuracy; these were carefully determined in seconds from observations of transits of slow moving stars. These equatorial intervals being known, the computation of time intervals for every star observed, and the reduction thereby of the observations to the central wire, can be rapidly effected. This method has the great advantage of showing at a glance the accordance of individual wire observations in each transit, and leads to the detection of mistakes—such as observations of wrong stars, or mis-readings of the chronographic record—at an early stage of the reductions. The stability of the wire intervals was found to be satisfactory.

*Telescope Micrometer.* The determination of collimation and level errors being made by means of the telescope micrometer, the value of its screw was required; and it was considered desirable to ascertain the regularity of the screw thread by testing this value at different parts of its length. With this object the micrometer head was first set to zero and the time of transit of a slow moving polar star over any one wire noted; then without moving the telescope the micrometer was set on to 100 and the time of transit over the same wire again noted; thence to 200, 300 and in succession up to 3,200, a range which embraces a little more than the whole breadth of the wire system. In the Appendix will be found an abstract of the results in tabular form, the last column of the table containing the value of one revolution of the micrometer head at the particular part of the screw specified in the first column.

This process was only carried out in the case of Telescope No. 2. From the numbers in the last column additional values of the wire intervals were obtained, by measuring them with the micrometer, with the help of the single fixed wire with which each of the twenty-five moveable wires was made to coincide successively. The finally adopted values of wire intervals for both telescopes, for each season, are given in tabular form in the Appendix. The screw of Telescope No. 1 was not examined in the same way, but its value was determined by measuring with it the wire intervals, the values of which had been previously ascertained from transits of circumpolar stars. An abstract of the measurement of the value and of the micrometer screw is also given in the Appendix.

*Collimator Micrometer.* Owing to the system adopted for measuring the collimation error of the transit telescope, the value of the screw of the collimator micrometer was required in terms of the telescope micrometer: this was readily obtained by directing the transit telescope on the collimator, and measuring with the collimator micrometer the known intervals between the wires of the telescope; or by measuring the distance between the two vertical wires of the collimator, first by means of its own micrometer, and then by that of the telescope.

The foregoing instrumental constants being known, the first operation in actual observations is the determination of the collimation correction for the central wire, which was carried out as described in the next section.

## 2.

### *Determination of Collimation.*

The collimation of the telescope was always tested in the usual way by reference to a pair of collimators approximately horizontal; but as it was considered a point of importance to make all the observations entering into the process of a similar nature, *viz.*, the intersection of a pair of crossed wires by a vertical wire, the means of doing this were provided for in the construction of the collimators. One collimator, N, always placed to the north of the transit telescope, is provided with a fixed pair of crossed wires, while the other, S, placed to the south, possesses a similar fixed cross and also two vertical wires moveable by a micrometer. The cross of N was always placed as nearly as possible in the meridian and that of S slightly to one side, so that the observer looking through S saw the two crosses separated by a convenient distance,  $\Lambda$ , which he measured by the micrometer of S. Proceeding to the transit telescope he then observed the cross wires of N and S on the central transit wire, obtaining a mean micrometer reading of each. The reading of S so found, corrected by  $\Lambda$  converted into terms of the telescope micrometer, affords the reading of a supposititious point exactly opposite the cross of N collimator; this latter reading being combined with the observed reading of N, the mean of the two gives the reading of the telescope micrometer when the central transit wire is exactly collimated. This last reading was named  $C_0$ . No attempt was ever made to observe star transits with the micrometer set at  $C_0$ , in order to avoid the necessity of a collimation correction, but a convenient round number—called  $C_s$ —was always adopted and generally used throughout the observations at a station. It is thus evident that the collimation error of the central transit wire at any time was the difference between  $C_0$  and  $C_s$ , which difference is called  $c_1$ , the sign given being plus or minus, according as the position  $C_s$  caused the transit of a star earlier or later than would have been the case if the position had been  $C_0$ , so that  $c_1$  becomes a correction as regards the effect on star transits. A specimen of the form in which collimation and level observations were taken is given in the Appendix.

By an oversight on the maker's part the motion of the micrometer screw varies in the eye-tubes of the two telescopes; in some the micrometer readings increase as the wires are moved eastwards when the illuminated pivot is in the eastern Y, and in others the reverse holds; so that for some eye-tubes  $c_1 = C_0 - C_s$  and in others  $c_1 = C_s - C_0$ . The sign is always reversed by change of pivots. Two determinations of collimation error were generally made every night and the mean of the two adopted for

the correction-constant for collimation for the night; such at least was the normal arrangement, but owing to various causes it could not be universally adhered to. In making these observations several readings of the collimators were taken with the telescope, and the precaution was followed of causing the telescope to oscillate or wholly revolve after each reading, varying the direction of its rotation.

### 3.

#### *Diurnal Aberration.*

The effect of the diurnal aberration on the time of a star's transit was not lost sight of, although for all the arcs measured—or indeed for any ever likely to be measured—that effect is inappreciable when the observations taken at both stations are combined. The correction for diurnal aberration is a constant quantity for each station, and as it must, like that for collimation, be multiplied by the secant of each star's declination to obtain the correction in time for that star's observed transit, the two corrections may be combined. The correction used for aberration was  $-0^{\circ}.0207 \times$  the cosine of the latitude, and this, converted into terms of the micrometer and applied to  $c_1$ , gave  $c$ , which was used as the correction-constant for collimation and aberration combined for each night.

### 4.

#### *Determination of Level Error.*

The dislevelment of the instrument was always obtained by the use of a mercury trough. Supposing the telescope to be perfectly levelled, then the central wire if collimated, will exactly coincide with its reflection from the mercury when the telescope is directed towards the nadir; and if the levelling be disturbed by a certain angular quantity, the wire must be moved by the micrometer through a space representing the same angle, in order to regain coincidence with its reflection. This coincidence was always observed several times; the mean micrometer reading being called  $M$ , it is evident that the dislevelment is the difference between  $M$  and  $C_0$  (the reading of no collimation error); this difference is called  $b$ , and is the level correction-constant for combination with the constant for each star to correct the time of transit for dislevelment. The sign of  $b$  is governed by the same considerations which apply to  $c_1$  as already explained. As a rule two determinations of dislevelment were made each night, and their mean used to obtain  $b$  for all the star observations of the same night; but occasionally three values of  $b$  were obtained, in which case the means of the first and second, and of the second and third, were used for the stars observed during the corresponding intervals. It may be remarked that no reading of the mercury trough for determination of dislevelment is of any value without a corresponding determination of collimation error, unless the line of collimation may be looked upon as practically constant, *i.e.*, constant within the limits of observation error. The assumption of such constancy was considered justifiable, and therefore it was not deemed necessary that the times of determining the collimation and level errors should be very closely the same.

An abstract of collimation and level determinations is given in *Table I* for each season, the arrangement of which will be readily followed with the help of the foregoing explanation, while to facilitate reference, a recapitulatory explanation of the symbols employed is given immediately preceding the table.

### 5.

#### *Table II.—Deduction of Deviation Correction from Star Observations.*

In order to determine the azimuthal deviation of the transit telescope from the meridian, two

pairs of circumpolar stars were always observed when possible, one star of each pair being observed at upper culmination, and the other at lower culmination. These were so arranged that one pair culminated near the beginning and the other near the end of the night's work. *Table II* contains the values of deviation corrections deduced from these observations. When a star is designated by a number followed by the symbol R. P. L. or Gr. 72 the reference is to the Radcliffe Polar List in the first case and to the Greenwich Nine-Year Catalogue for 1872 in the second. The first eight columns require no explanation beyond a remark that the same clock was always used for both stars of a pair; on rare occasions, however, when one of them was observed in the middle of a set of transits which were being recorded with the time transmitted from the distant clock, it was more convenient to use that clock for the azimuth star also, although its companion star had been observed with the local clock. The clock employed is noted by the letter in the column headed "Clock in use"; and when both clocks were used for one pair of stars, the observed time by the distant clock is entered in brackets, in column 10, with the corresponding local time below it, the latter being deduced by means of the clock comparisons which were always made. When both stars of a pair were observed with the distant clock no such conversion is required. The quantity  $A$ , in column 9, is the azimuth-constant for each star, equal to  $m \sin \zeta \sec \delta$ —where  $\zeta$  is the zenith distance, positive when south and negative when north,  $\delta$  the declination, and  $m$  a constant numerical factor for converting divisions of the telescope micrometer into seconds of time:  $m$  will be referred to again. This formula gives the sign proper to  $A$  under all circumstances, if the declination of a lower culmination be considered the supplement of the actual declination.

The "Observed Time of Transit", in column 10, is the mean of the times observed on all wires after the reduction of each to the central wire. The "Corrections for Collimation and Level", columns 11 and 12, are those obtained by multiplying the corresponding correction-constant given in *Table I*, by the proper constants for each star, viz.,  $m \sec \delta$  for collimation, and  $m \cos \zeta \sec \delta$  for level, the symbols being as above. The stars in *Table II* being all well known, it was not thought necessary to enter their declinations; but the approximate latitudes of the stations are given in order to facilitate the re-computation of the corrections if required. The factor  $m$  was introduced because the collimation and level corrections were originally obtained in terms of the micrometer, and it was more convenient to retain that denomination—and employ it for the deviation correction also—than to convert into seconds directly. The values of the telescope micrometers, as determined by observation from time to time\*, varied so slightly that the mean value, 1 div. =  $0^{\circ}.0225$  (equatorial) has always been used for both instruments, therefore  $m = 0^{\circ}.0225$ . Column 13 contains the "Correction for Pen Equation,  $Q$ ," required to reduce the observer's record on the chronograph to that made by the clock; it was daily obtained by observation as explained in Chapter III, Section 5. The "Correction for Clock Rate", column 14, is required for the interval between the transits of the two stars forming a pair; it was always applied to the later observation, and the interval was so small that a very accurate knowledge of the rate was not necessary. Column 15, headed "Seconds of Corrected Time of Transit", contains merely the sum of the quantities in the five preceding columns, the seconds only being entered. The "Right Ascension", in column 16, was computed from the Nautical Almanac in the case of stars taken from it, and by Bessel's Independent Quantities or by Airy's Day Numbers, for other stars. In the latter case the term involving the longitude of the moon was not lost sight of, but it was never used in the reduction of Right Ascension as its effect on the stars employed was found to be inappreciable. When a lower culmination was observed, the computed Right Ascension at the time of observation, increased by twelve hours, is entered.

The "Apparent Clock Corrections", in column 17—being the differences between the two preceding columns—afford the means of computing the deviation correction  $a_1$ , as follows:—Let  $\Delta T$  be the true clock correction, while  $\Delta t$  and  $\Delta t_1$  are respectively the corrections obtained by the upper and lower culminating stars of a pair; then we have the two equations,  $\Delta T = \Delta t - A a_1$ , and  $\Delta T = \Delta t_1 - A_1 a_1$  (where  $A$  and  $A_1$  are the values of the azimuth-constant for the two stars respectively) by combining which  $\Delta T$  is eliminated, and there remains one equation from which  $a_1$ —expressed in terms of micrometer

\* *Vide* page 2 of Part II of this volume.



divisions—is deduced, and entered in the next column. The sign of  $\alpha_1$  is positive or negative, according as the plane of rotation of the telescope cuts the horizon to the west or east of the north point; and thus the quantity  $A\alpha_1$  affords the correction for deviation to be applied to the time of transit of any star for which  $A$  is computed by the formula given above. For seasons 1882-83 and 1883-84, *Table II* contains an extra column headed “Arithmetic Mean  $\alpha$ ”. This is in general only the mean of the several values of  $\alpha_1$  for each day.

## 6.

*Table III. Direct Comparisons of Clocks.*

*Tables III* and *IV* contain the results of the Direct Comparisons of Clocks. For these comparisons the method adopted was as follows:—The clock at the east station—generally known as E clock—was put in circuit with the translating relay, so that its beats were transmitted to the distant (or west) station for about  $1^m 15^s$ , during which time these signals were received at the west station by the receiving relay and recorded on the chronograph by one pen, while the local (or W) clock time was recorded alongside by the other pen. The procedure was then reversed, a similar set of signals being sent from west to east, and it is evident that a clock difference obtained from the double process must be cleared of the effect of retardation, considered equal in both directions. In order to eliminate the pen equations, a second exchange of signals was repeated exactly as above, except that the pens of the receiving station were made to exchange duties, thus reversing the sign of the equation. Such a set of four simple comparisons was considered a ‘full comparison’ which was nearly always secured by repetition if necessary. The comparison was transcribed from the chronographic record at the receiving station, by reading the integral second-signals of the distant clock, in terms of those recorded by the local clock, read to the nearest hundredth part of a second, and the results are given in *Table III*.

The headings show the station—E, east, or W, west—at which the comparison was made, and at the head of each column the sign of the pen equation,  $Q$ , is entered. In the columns are given the decimal parts which must be added to each second recorded by the local clock, in order to obtain its time corresponding to the next later second received from the distant clock, and at the foot of each column the full corresponding mean time\* of the signals transcribed is given for each clock. The mean time of the transmitting clock—i.e., the time by E clock for a comparison made at W, and *vice versa*—is always entered to an integral second, being the mean of the integral seconds transcribed. The corresponding mean time of the clock at the comparing station, is composed of the corresponding time to the next earlier integral second, *plus* the mean of all the decimal portions read off the record which is entered in the upper part of the column. The difference between these mean times is taken out at the foot of the table, and affords an approximate clock difference from which the effects of pen equation and retardation have still to be eliminated, and this is done in *Table IV*. It will be noticed that the number of the clock signals read off for comparison is nearly always twenty, while their mean is entered as an integral second, which is manifestly incorrect as the exact mean must in every such case comprise a half second. This departure from rigorous procedure was permissible for the convenience of computing, because the relative change of clock times during half a second—the difference between the epoch used and the true epoch—is quite inappreciable. Although each comparison extended over about  $1^m 15^s$ , it was considered amply sufficient to use only twenty of the recorded signals, but the possession of the larger number was an advantage in affording a choice of the portion of the minute, and of the part of the chronographic revolution—which occupies a period of two minutes—to be selected for the comparison, with a view to cancelling the effects of any imperfection in the toothed-wheels of the clocks which generate the signals,

\* As the expression “mean time” will be constantly used, the reader is warned once for all that mean *solar* time is never referred to. The term “mean time” always indicates the mean of several values of time.

or of any recurring irregularity in the rate of the chronograph. In the decimal readings of each second a regular alternate change of amount is sometimes apparent, which is due to one or both of the clocks having been slightly out of beat. The pen equation  $Q$  is always the quantity which should be applied to the time of the distant clock, on the chronographic record, in order to reduce it to that of the local clock.

## 7.

*Table IV. Reduction of Direct Comparisons of Clocks.*

The reduction of the results obtained from the direct comparisons of clocks is carried out in this table.

The observed differences are abstracted from *Table III* under the head  $d$ , with the direction of signals from which each is derived in the next column, while the corresponding times by east clock are entered to the nearest second in the second column, and the mean of the latter—called  $t_e$ —is taken out for each comparison. The next step is to obtain a relative hourly rate correction for the clocks from the successive mean values of  $d$ , and the corresponding epochs  $t_e$ . This correction—called  $R$ —is considered to belong to the mean of the two epochs from which it is derived.  $R_1$  is then interpolated from  $R$  for each epoch  $t_e$ , and lastly each value of  $R_1$  is employed to correct the values  $d$  of the group to which it belongs, so as to clear them from the effect of relative clock-rate. The sign of  $R$  or  $R_1$  is always such, that if applied to correct the rate of the west clock, it would cause it to keep time with the east clock. The reduced values of  $d$  are entered as  $d_1$ , and designated  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$  in each group;  $\alpha$  and  $\gamma$  being always obtained from signals transmitted from east to west, while  $\beta$  and  $\delta$  are derived from those in the reverse direction.

It is evident that the quantities  $d_1$  marked  $\alpha$  and  $\gamma$  differ by double the pen equation at W station, while  $\beta$  and  $\delta$  differ by double that at E station, whence the value of each pen equation is deduced. The pen equation is a very constant quantity, only liable to minute accidental variations, except when altered on purpose.

Now as the differences  $d$  are obtained by subtracting the time of west clock from that of the east clock, it follows that the retardation of a signal through the line will cause  $d$  to appear too great or too small, according as the direction of transmission is from west to east or east to west; and the difference between two values of  $d$  obtained from signals in opposite directions, will represent the sum of the two retardations which must be considered equal to each other, as there is no possibility of separating them. The difference between two values of  $d_1$  will give the same quantity cleared of the effect of relative clock-rate.

Hence the formula is arrived at, which is given at the head of the tenth column:—

$$\text{Retardation} = \frac{\beta + \delta}{4} - \frac{\alpha + \gamma}{4}.$$

Again, on the supposition of equal retardation in the two directions, it follows that its effect must be eliminated from the mean of a set of differences derived equally from signals in each direction, and therefore this mean represents an exact difference between the two clock times. The last column contains deduced clock differences,  $D$ , interpolated from the means of  $d$  for certain epochs,  $T_e$ , at which they will be required in the course of subsequent reductions.

It is evident that for this purpose the means of  $d_1$  might equally well be used, as they are in fact identical with the means of  $d$ ; but the latter are mentioned, because, for the purpose of computing  $D$ , the use of  $R_1$  and  $d_1$  is superfluous, these quantities being merely introduced in order to determine the retardation. The values of retardation are not as a rule required for purposes of reduction, but they are of interest, and their accordance *inter se* affords some test of the accuracy of the process of comparing clocks.

## 8.

*Table V. Abstract of Observed Values of Personal Equation.*

*Table V* contains an abstract of the individual values of personal equation observed during the seasons 1881-82, 1882-83 and 1883-84, by the method of divided transits with the same telescope; as described in Chapter IV. The heading of the table shows which transit telescope was in use, and the results are entered in two groups according as the stars observed were of north or south aspect; lastly the observations are entered in three columns under the dates on which they are made, the first giving the number of the star in the British Association Catalogue, the second its declination and the third the difference in seconds of time between the reduced transits by the two observers. The letters C, S and H symbolize respectively the three observers Lieut.-Colonel W. M. Campbell, Major G. Strahan and Major W. J. Heaviside, and the subscripts N and S refer to the aspect of the stars observed. The quantity  $S - H$  is obtained by subtracting the time of transit as noted by Major Heaviside from that noted by Major Strahan, and must be added algebraically to Major Heaviside's observations to make them comparable with Major Strahan's. The mean of each group with its probable error is taken out at the foot of the table.

## 9.

*Table VI.—Deduction of the Final Values of the Relative Personal Equation.*

In *Table VI* the mean results of *Table V* are abstracted in two divisions, according to the aspect of the stars observed; the dates, telescope used and mean values of the equation with their weights are given. The general means arrived at by using combination weights are entered, and the final values of the equation adopted for use in the reduction of the observations follow the table.

## 10.

*Table VII.—Abstract of Observed Values of the Absolute (N—S) Equations.*

Each observer made a point of transiting a few zenith stars every night under both north and south aspects, in order to obtain a value of the absolute equation—called the 'N—S' equation—peculiar to himself, depending on the aspect of the star observed, or in other words, on the direction of its apparent motion. The results of such observations are given in *Table VII* which is arranged in groups for each station, showing the British Association Catalogue number of the star, and the difference between the two observed times, that obtained under south aspect being always subtracted from the other. The mean of all these differences at each station is adopted as the N—S equation for that set of observations, and its use will be explained hereafter. The general symbol, N—S, indicates a correction to be added to the times of transit of stars observed under south aspect, before they are compared with those derived from stars of north aspect.

## 11.

*Reduction of Star Observations—Explanation of the Terms  $M_N$ ,  $\delta L_N - \rho$  and  $\delta L_N + \rho$ .*

In *Tables VIII, IX* and *X*, the star observations are given in abstract, and their reduction is carried out to the determination of the quantities  $M_N$ ,  $\delta L_N - \rho$  and  $\delta L_N + \rho$ , the meanings of which will now be explained.

The quantity  $M_N$  occurs in the case of measurements made on the system of transits taken with

local clocks and combined by clock comparisons, the reduction of which is contained in *Table VIII*. The same stars were always observed at both stations; and the difference of the times of transit corrected for all instrumental errors is taken out, subtracting the time observed at the east, from that at the west, station. The mean of such differences for a group of observations, corrected for clock-rate and reduced, by means of both observers' absolute N—S equation taken from *Table VII*, to stars of north aspect is called  $M_N$ . If both clocks were exactly correct and there were no errors of observation it is evident that  $M_N$  would disappear. The method of reducing the mean of the differences to stars of north aspect is as follows:—Supposing there are  $n$  north stars in a group and  $s$  south ones, then the numbers in the last column but one are obtained from the equation

$$\text{Correction} = \frac{s}{n+s} \left\{ \overline{S_N - S_s} - \overline{M_N - M_s} \right\}.$$

The quantities  $\delta L_N - \rho$  and  $\delta L_N + \rho$  are the results, deduced in *Tables IX* and *X* from observations made on the system of taking transits with the same clock marking both chronographs, the same stars being used at both observatories, and all reduced to stars of north aspect as explained in the preceding paragraph.  $\delta L_N \mp \rho$  (generally) is the difference between the corrected times of transit of the same star (reduced to N. aspect if necessary) over both meridians, the time at east being always subtracted from that at west station. Here it is evident that if the clock in use were rated to keep true time, and if its beats were recorded at both stations synchronously—and also if there were no errors of observation, and no personal equation—then the difference between the times of transit of the same star at the two stations would be exactly equal to the difference of longitude. But the result actually obtained is affected—in addition to errors of observations—(1) by the rate of the clock used during the interval between the transits at the two stations, and (2) by the retardation of the beats of the clock transmitted through the wire and relays to the distant station. A correction for clock-rate is applied in these tables, but the retardation—which is called  $\rho$ —remains for elimination at a later period.

## 12.

### *The Sign of $\rho$ .*

The correction for  $\rho$  changes its sign according to the clock in use. The retardation always causes the times of observations made at the far station, *i.e.*, the station receiving the clock beats through the line, to appear slow as compared with those obtained from the clock at its own station; because the time at the far station is recorded by beats of the clock, which are generated an instant earlier than they are received, the interval being  $\rho$ . Therefore whichever clock is in use,  $\rho$  has the effect of increasing the time observed at the distant station, and as the difference between the observed times of transit is always obtained in *Tables VIII, IX* and *X* by subtracting east from west time, the correction it requires is  $+\rho$  when east clock, and  $-\rho$  when west clock, is used. It should be noted that the quantity  $\rho$  includes all sources of retardation, those arising from the instruments employed in the observatories to generate the signals transmitted, or to record those received, as well as the simple time of transmission of a signal through the line wire between the stations; and there can be no doubt that the last portion is not only a minute fraction of the whole, but also very constant in amount.

There is no way in which  $\rho$  can be determined separately for each clock, *i.e.*, for the transmission of signals in opposite directions through the line, and it is therefore necessary to consider it the same for both. Any variation from such equality is probably very small in proportion to the whole quantity, and as it arises chiefly from irregularities in the action of relays and chronograph pens in the observatories, it must be itself irregular, and liable to elimination in a series of observations.

In the Appendix will be found an investigation of the influence on the deduced longitude, of the varying adjustments of the relays and retardation of signals on the line, from which it appears

that the latter is completely neutralized by sending currents alternately from E. to W. and from W. to E., if at least the velocity be supposed equal in both directions, and that the effect of the former must necessarily be very small.

## 13.

### *Explanation of Tables VIII, IX and X.*

These tables are arranged in groups, each exhibiting the results of the measurement of one arc.

At the head of each table the names of the stations and their approximate latitudes and longitudes are entered, and below this, the central part of the body of the table is divided in halves—the left hand and right hand portions being assigned to the observations at the east and west station, respectively—outside of these to the left and right are some columns common to both stations.

Beginning from the left hand,

Column 1 contains the astronomical date.

„ 2 contains the British Association Catalogue number of the star observed.

„ 3 contains the star's approximate declination.

Columns 4 and 9 shew the aspect under which the star was observed at each station; N and S meaning that the observer sat facing the north or the south, respectively.

„ 5 and 10 indicate the position of the instrument, and give the correction-constants for each group of observations. The letters *I.P.E.* or *I.P.W.* mean that the illuminated pivot of the transit telescope was east or west, respectively—a position that was never altered during the work of any one night except for some of the arcs measured in season 1883-84. *c* and *b* are the correction-constants for collimation (including diurnal aberration) and level, abstracted from *Table I.* *a* is the deviation correction abstracted from *Table II*, and is generally the mean of the several values of  $a_1$  for each night. *c*, *b* and *a* are expressed in divisions of the micrometer. *Q* is the correction for pen equation in seconds of time, the sign of which changes after each group.

Columns 6 and 11 contain the mean observed time of transit at each station for each star. The transit of a star was generally observed over fifteen wires, the individual observations were reduced to the central wire, and the mean of all is here given. These reductions are effected by multiplying the known equatorial wire-intervals by the secant of the declination of the star observed, and applying the products to the observed times of individual wires by addition or subtraction as the case may be.

„ 7 and 12. In these columns, under the head of “Total Correction”, the sum of the corrections for collimation, level, deviation and pen equation, *Q* is given. With the data afforded *viz.*, the latitude of the station, the declination of the star, the value of the telescope micrometer (*i.e.*,  $1^d = 0^s.0225$ , as noted at the foot of each page of these tables) and the constants *c*, *b*, *a* and *Q*, the separate corrections can be computed, and the quantities in columns 7 and 12 checked.

„ 8 and 13 contain the seconds of the corrected times of transit, obtained simply by taking the sum of the quantities in the two preceding columns.

Column 14 contains the difference between the corrected times of transit of each star at the two stations, east time being always subtracted from west.

„ 15 contains the mean of each group in the preceding column.

„ 16 contains a correction required on account of clock-rate, as follows:—The quantity  $M_N$  arrived at in *Table VIII* will afterwards be combined with an absolute clock-difference, *D*, deduced from clock comparisons for an epoch,  $T_E$ , by east clock time. The quantity entered in column 14, is the difference between the time shown by east clock at a certain moment, and that by west clock at an instant later than the former by the exact difference

of longitude between the two stations, or by the interval between the transits of the same star at the two stations. It is thus evidently affected by the rate of the west clock during that interval, for which it must be corrected before it can be combined with D. The quantity in column 15 of *Tables IX* and *X* requires a similar correction for the rate of the clock in use, because this quantity is a direct difference between two observed times by the same clock, and is therefore affected by the rate of that clock during the interval between the observations. The corrections for rate used in these tables are deduced in *Table XI*. After the sixteenth column the arrangement of the tables under notice, *viz.*, *Tables VIII*, *IX* and *X* becomes different, and the remaining columns must be separately explained. The seventeenth column of *Table VIII* contains a correction for the observer's personal equation by which all the stars contained in it are reduced to the condition of stars of north aspect, as explained in Section 11 of this chapter. The eighteenth column contains the quantity denoted by  $M_N$ , the sum of the quantities in the three preceding columns, they are the finally corrected mean differences of the two clock times of the transits of a group of stars (all reduced to north aspect) observed at both stations. The epoch to which  $M_N$  is considered to belong is the mean time of transit of the stars observed, which is taken out for each group by the east clock, and entered in column 6 as  $T_E$ . The reduction carried on in *Table VIII* is continued in *Table XII*, columns 4, 5, 6 and 7, where the difference of longitude is arrived at.

The quantities in the seventeenth column of *Tables IX* and *X* are obtained in a similar manner to those in the seventeenth column of *Table VIII*, but as the relative proportion of north to south stars in the three tables is not always the same, the figures do not necessarily correspond. The last column of each table contains the sum of the quantities in the three preceding columns, entered under the head of  $\delta L_N - \rho$  or  $\delta L_N + \rho$ , according as it is deduced from observations with east or west clock, respectively, and each such quantity is a supposititious apparent difference of longitude, as deduced from the observation of all stars, when considered to have been observed on north aspect only. Corrections are still required for the relative personal equation of the observers, and for the retardation of the clock signals between the stations, which are applied in *Table XII*, where the final values of the difference of longitude  $\Delta L$  and of retardation  $\rho$ , are deduced.

## 14.

*Table XI. Deduction of Clock-Rate Corrections from the Observations of Transits.*

Clock-rate corrections for the intervals between nights of observation were found by comparing the corrected transits of the same stars on successive days, and are entered in *Table XI* under the head  $\alpha$ . In doing this the effect of change in the right ascensions of the stars observed was not lost sight of, but this effect—as computed by Bessel's Independent Quantities—was found in all cases to be quite inappreciable. For all the arcs measured each observer obtained a value of the rate-corrections,  $\alpha$ , for each clock, and from the means of these quantities, hourly rate-corrections,  $\beta$ , are interpolated for each night of observation. The correction to be applied to the difference of observed times of transits, is simply the quantity  $\beta$  for the night, multiplied by the difference of longitude in decimals of an hour, and these products are shewn in *Table XI*.

## 15.

*Table XII. Deduction of the Difference of Longitude,  $\Delta L$ , and the Retardation of Signals,  $\rho$ .*

The final results are arrived at in this table. Those obtained by both methods, *viz.*, by observa-

tions of transits with local clocks combined by clock comparisons, and by observations of transits at both stations with the same clock, are arranged in parallel columns for the reader's convenience in comparing them.

Column 1 contains the astronomical date, and column 2 which is occasionally divided into two parts, gives the instrumental position common to both methods.

Columns 3 and 5 are abstracted for each date direct from *Table IV*.

Column 4 is taken from *Table VIII*, and column 6 contains the algebraic sum of 4 and 5. The mean value for each instrumental position (*I.P.W.* and *I.P.E.*) follows and below this the general mean.

Columns 7 and 8 are the results obtained by the method of transits at both stations with the same clock, and are abstracted for each date from *Tables IX* and *X*, respectively. Means for each instrumental position and a general mean follow as before. These general means thus obtained are, it must be remembered, not yet corrected for the relative personal equation of the observers. What has been accomplished thus far is that all the stars taken by each observer have by means of his own absolute N—S equation been reduced to what they would have been if all observed on north aspect. It should be noticed that these values are symbolized by  $\delta L_N$  until the relative personal equation  $H_N - S_N$  has been applied, when the symbol is changed to  $\Delta L_N$ . Below this  $\delta L_s$  is obtained from  $\delta L_N$  by applying the difference of the two observers' absolute N—S equation with its proper sign in order to reduce all the observations to south aspect, and thence follows, by applying the relative personal equation for south stars, the value of  $\Delta L_s$ . Half the sum of  $\Delta L_N$  and  $\Delta L_s$  is then entered as the final difference ( $\Delta L$ ) of longitude (each method being shown separately), and half the difference of the values given by the two clocks is  $\rho$ , the retardation of signals.

## CHAPTER VI.

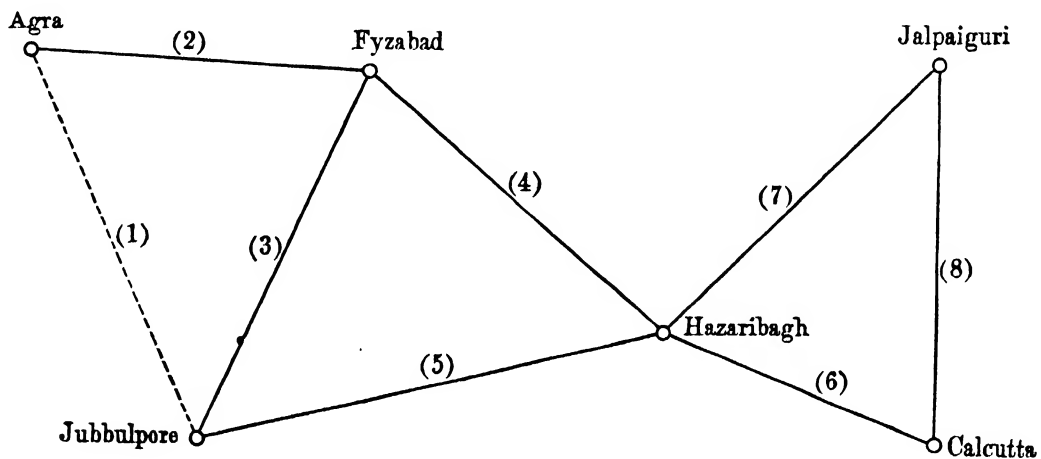
### DETAILED ACCOUNT OF THE OPERATIONS OF EACH SEASON.

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#### 1.

##### *Arcs measured during the Season 1881-82.*

In the annexed diagram the arcs measured during the season 1881-82 are shown in black lines, and numbered for convenience of reference. One arc previously measured, which is required to make clear the connection of this season's operations with former work, is indicated by a dotted line.



The descriptions contained in the preceding five chapters apply throughout to the work of this



season, and it is only necessary to remark in passing that the system of changing pivots was as follows. On the arcs numbered (2), (4), (6) and (8) in the diagram, the pivots were dissimilarly placed throughout, *i.e.*, when one telescope was *I.P.E.* the other was *I.P.W.* and *vice versa*. The pivots were reversed once only during the measurement of each arc, and this reversal was made for both instruments at the same time, *viz.*, when half the observations necessary for the work at each station had been secured. On the other arcs numbered (3), (5) and (7), the procedure was the same except that the pivots were similarly placed throughout, *i.e.*, both telescopes were always *I.P.E.* or *I.P.W.* together. It will be observed that these arcs form three triangular circuits from each of which may be formed a so-called "circuit equation", based on the condition that the arc subtending the station of middle longitude should, if the observations are perfect, equal the sum of the two including that station. The word "arc" is of course used here not in its linear signification but as expressing the difference of longitude of its two extremities.

Now the numerical values of these equations being derived from measures which are necessarily fallible, it follows that the equality alluded to can rarely if ever exist, and if the sum of the two last arcs be subtracted from the first the remainder will not be zero, but a small quantity whose magnitude will depend upon, and be a very trustworthy test of, the accuracy of the observations. These circuit equations are given in *Table D* of the Appendix, and it will be noticed that the residuals are astonishingly large when the exceeding refinement of all the operations involved is considered. For instance, the probable error in the estimation of the time of transit of a single star over the mean of 15 wires is  $\pm \cdot 012$  of a second of time for each observer, and as each arc depends on the transits of more than 200 stars, it becomes at once evident that there must be other causes at work to produce circuit errors amounting, as they do, to  $\cdot 281$ ,  $\cdot 551$  and  $\cdot 040$  of a second, respectively. The cause has been traced to a defect in both telescopes, but more especially in No. 2, due to insufficient strength of the junction of the object end tube with the central cube of the axis. A similar defect, which had been previously noticed and repaired, is alluded to in Volume IX, Chapter II, Section 1, and it was supposed that it had been completely remedied, until the results of the season 1881-82 showed that it was still exercising a fatal influence on the accuracy of the measurements. Both instruments were consequently sent to the Mathematical Instrument Department in Calcutta during the recess of 1882, where the necessary repairs were carried out under the superintendence of Major M. W. Rogers, R.E.

## 2.

### *Personal Equation.*

Personal equation was measured four times during the season 1881-82 as follows :—Firstly at Agra before the commencement of the longitude work proper; secondly at Fyzabad between the measurement of arcs (3) and (4); thirdly at Hazaribagh between arcs (4) and (5); and lastly at Jalpaiguri during the progress of arc (8), whilst cloudy weather at Calcutta prevented observations at that station, though not at Jalpaiguri. The determinations of the value of the equation were made in exact accordance with the system detailed in Chapter IV and call for no special remark. An abstract of the results and their probable errors will be found in *Table V*, page 75, Part II.

The length of time occupied each night in gazing through the telescope rendered it undesirable for the observers always to employ the same eye for observing, and it appeared possible that an equation might exist dependent on which eye was used. To ascertain if this were the case, Major Strahan took divided transits of about 80 stars at Hazaribagh, *i.e.*, he observed each star over the first ten wires with one eye, and over the last ten with the other eye, commencing alternately with right and left. The reduction of these observations showed such an equation to be entirely rejectaneous, but it brought to light most unmistakeably the fact that when a star is observed over a number of wires (15 or 20) there is in his case a marked tendency to anticipate the transit over the latter half of them, *i.e.*, that the mean

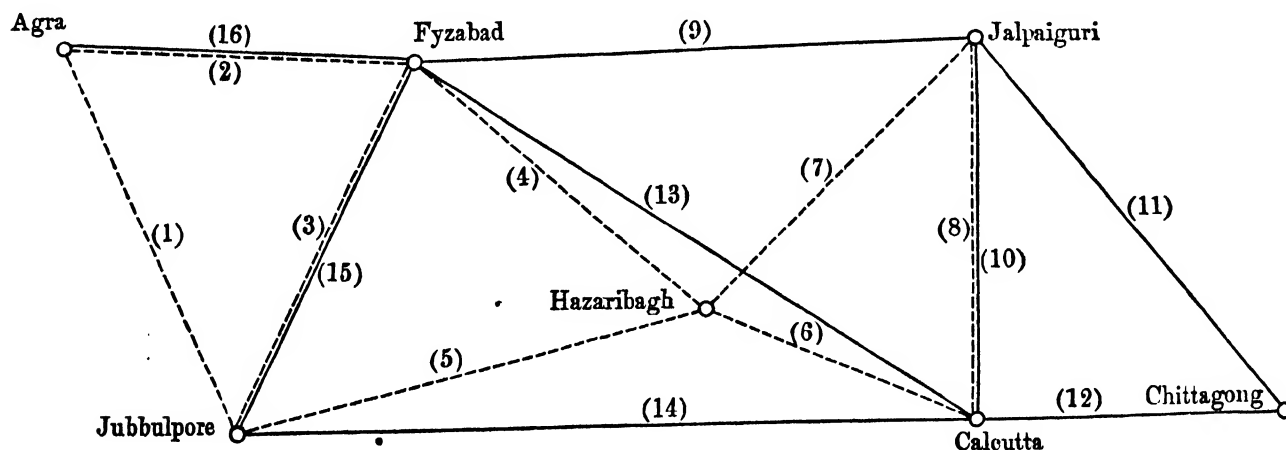
of the former half when reduced to the central wire gives a later epoch than the mean of the latter half. Major Heaviside's observations show the tendency less marked, and indeed in some cases the reverse condition holds with him. A little consideration will show that the effects of this peculiarity are taken into account by the application of the relative personal equation of the observers to the transits observed for longitude; for it may be considered as an idiosyncrasy, and as such is present in the observations for personal equation as well as in those for longitude. It would be entirely annihilated if the same number of wires were used in both processes: this is not strictly the case, as ten to twelve are used in the former, and any number from one to fifteen (fifteen in a large majority of stars) in the latter. The whole effect is however so small, and was moreover recognized only by the observation of twenty wires, that this departure from theoretical accuracy may be considered as quite immaterial.

### 3.

#### *Arcs measured during the Season 1882-83.*

In consequence of the magnitude of the circuit errors that had appeared in the previous season it became a matter for consideration whether that year's work should not be entirely rejected and remeasured; but as it seemed very uncertain whether all the arcs, or only one or two of them, were in fault, it was eventually determined to remeasure three only, *viz.*, (2), (3) and (8), and to add some new ones to strengthen the quadrilateral figure around Hazaribagh, from which it was hoped that sufficient evidence of the position of the faulty arcs would be forthcoming. This course proved very satisfactory, and afforded ample data for identifying the weak points of the previous work; but in order to avoid any suspicion of picking and choosing values to suit preconceived views, it was decided to publish the whole season's work, inaccurate though much of it is, and to leave to the reader the onus of taking or leaving as much of it as he thinks fit. A full discussion of this matter will be found in the Appendix, where the rejection of certain arcs is recommended, and the reasons for such rejection are given in detail.

The following diagram illustrates the operations of the season 1882-83. The arcs measured are shown as before by black lines, and those previously measured by dotted lines. Arcs remeasured are necessarily represented by both a black and a dotted line and have also two numbers affixed to them.



The changes in procedure from previous seasons were few. It was considered that more frequent change of pivots would be of use in furnishing more equations for investigation of pivot error and other instrumental defects; the reversal was therefore made after each night's work, instead of only once during the arc as heretofore, but the pivots were always similarly placed. In order further to vary the

conditions of observation, the moveable Ys described in the final paragraph of Section 2, Chapter I, were turned through  $180^\circ$  of azimuth one at a time at both stations, for the first two arcs only. Collimation and level were observed more frequently than in former years, three determinations each night being considered the normal number. In order to keep a watch as far as possible upon any instability in the tubes which had had such a disastrous effect in the preceding season, the collimators were intersected by the threads of the transit instrument by bringing the telescope alternately down from the zenith and up from the nadir, as it was supposed that the varying strains produced by this method would bring to light any imperfection of the kind.

#### 4.

##### *Difficulties experienced in Leveling.*

The observers found considerable difficulty in Calcutta in seeing the reflection of the spider lines in the mercury trough with the Bohnenberger eye-piece when leveling the transit instruments, owing to tremors of the ground; and some experiments were made with a view to diminishing the vibration of the surface of the mercury caused by the extreme instability of the Calcutta soil, an instability so great that a tremor, sufficient to obliterate the reflected image of the wires, was set up by the wheels of a passing carriage long before even the sound of the carriage could be heard. A cough or sneeze from one of the men standing in the observatory tent would often render the image invisible for a second or two. Lieut.-Colonel Campbell suggested that the mercury trough itself should be made to float on the surface of mercury in a larger vessel; a trough suspended by a system of india-rubber rings was also tried, as well as a piece of silvered glass floating on the mercury, but none of these expedients caused any perceptible abatement of the nuisance; and it seems probable that the vibration of the telescope tube itself, communicated through the pillars, is a more active agent in producing it than the tremor of the mercurial surface.

#### 5.

##### *Personal Equation.*

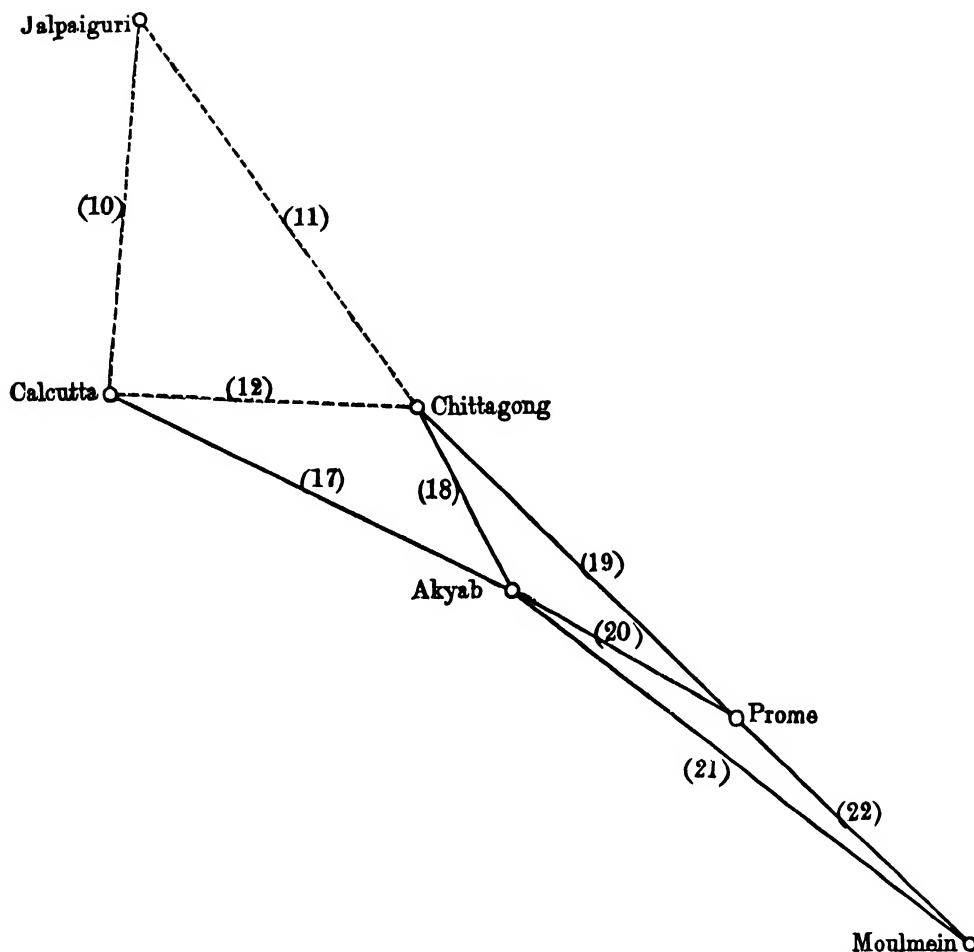
The observers, Lieut.-Colonel Campbell and Majors Strahan and Heaviside, met for the determination of their personal equations as follows:—Lieut.-Colonel Campbell and Major Strahan at Calcutta before commencing the first arc, Majors Strahan and Heaviside at Jalpaiguri between the arcs (8) and (9), Lieut.-Colonel Campbell and Major Strahan at Jalpaiguri during the measurement of arc (10), Majors Strahan and Heaviside at Jubbulpore between arcs (14) and (15) and again at Agra after completion of arc (16). An abstract, with the probable error of each night's determination, is given in *Table V*, page 268 Part II, the results obtained from N. and S. stars being kept separate as usual.

#### 6.

##### *Results of the Operations of Season 1882-83.*

A full discussion of the conclusions to which the work of this season points with regard to the erroneous arcs of 1881-82, will be found in the Appendix. It may suffice to say here that the rejection of the arcs (3) and (4) of 1881-82, reduces the circuit errors very materially and brings them down almost to their normal magnitudes. The peculiar facial difference first observed in 1881-82 was very apparent throughout this season, and led to further changes in the routine of pivot changes for the next season which will be specified in the account of that year's work.

## 7.

*Arcs measured during the Season 1883-84.*

This diagram shows, as before, in black lines the arcs measured during the season, and the connection with previous work in dotted lines. The alternation of pivots was again changed and still with the same view of throwing further light on the facial differences. Independent experiments with the same object were also made on each telescope at intervals during the season. The observations were made with similar and dissimilar pivots, so that if the first night's work for the measurement of any one arc of longitude was begun with the illuminated pivots of both telescopes east, that of the second night was carried out with the one *I.P.E.*, and the other *I.P.W.*, of the third night with both telescopes *I.P.W.*, and of the fourth with the one *I.P.W.*, and the other *I.P.E.* The following nights were merely repetitions of previous ones. On the arcs (17) and (18) the same two systems of observation as in previous years were adopted, *viz.*, by observations of transits with local clocks combined by clock comparisons, and by observations of transits at both stations with the same clock, thus giving two results for each night for each position of the telescopes; and throughout these two arcs the telescope at the west station remained in position for the first two successive nights, whilst the other telescope was reversed, and then the telescope at the east station remained in position for two nights, whilst the other was reversed. On the last four arcs (19), (20), (21) and (22) the procedure was altered; observations were taken on the former system only, and the position of the telescope at the east station was reversed half way through each night's observations, whilst the telescope at the west station was reversed between each two successive

nights. Thus for eight nights' work there would be sixteen different values—four for each combination of instrumental position.

## 8.

### *Personal Equation.*

The observers, Majors Strahan and Heaviside, met for determining the value of their relative personal equation twice, *viz.*, in Calcutta before commencing the longitude work and again in the same place after completing it. The methods of observation and reduction were the same as in the two previous seasons and call for no special remark. An abstract of results with values of probable error will be found in *Table V* of the season 1883-84.

## 9.

### *Independent Observations with each Telescope for Pivot Errors.*

It has been previously stated that each observer made some experiments independently for determining the facial or pivot error of his instrument. The method adopted was to observe about 20 stars on one night with the telescope in one position, say, *I.P.E.*, and on any subsequent night to observe the same stars, one half with the telescope *I.P.E.* and the other half with the telescope *I.P.W.* Then assuming that the clock rate does not vary appreciably during the time the observations are being made, that is during about one hour each night, the mean rate obtained from the first ten should be the same as that from the last ten, any difference being due to some instrumental defect. Occasionally 30 stars were observed and the instrument was reversed twice on the second night, the positions being *I.P.E.*, *I.P.W.*, *I.P.E.* For further information on this point the Appendix should be consulted, where in *Table E 9*, the deduced clock rates are given and the resulting equations formed.

## 10.

### *Concluding Remarks.*

Notwithstanding all the care and thought that have been bestowed on the three years' work contained in this volume it remains very evident that, owing to some peculiarities in one or both instruments the times of transit of a star, after all known corrections have been made, vary with change of pivot in a most vexatious manner, and that in spite of all attempts made to obtain a system of corrections to be applied according to the instrumental position *I.P.E.* or *I.P.W.*, circuit errors objectionably large still occur; it has therefore been decided to return the instruments to the makers for thorough examination and repair before they are again employed on determination of differences of longitude and more especially to have them fitted with new Ys of the usual fixed pattern to replace those now in use, which, though highly ingenious, are not free from suspicion of being the cause of the irregularities. The electrical arrangements worked satisfactorily and were the same from year to year, except that during the last season 1883-84 Leclanché or bichromate cells were at some stations substituted for Menotti cells for local batteries with very great advantage, as it was found that two of the former gave much sharper and cleaner action to the pens than four of the latter. They should always be used by preference when available.

## APPENDIX.



## APPENDIX.

### 1.

#### *Determination of the Geodetic Elements of the Longitude Stations.*

All the points used as longitude stations are connected with the stations fixed by the Great Trigonometrical Survey in order to determine their geodetic latitudes and longitudes. The longitude station at Calcutta is situated on the meridian of the latitude station, but in order to fix the longitude stations at Agra, Hazaribagh, Fyzabad, Chittagong, Jubbulpore, Jalpaiguri, Akyab, Moulmein and Prome, special triangulation was necessary in each case. This was executed by Messrs. H. Keelan and J. Bond; the results are given in *Tables A, B and C*, and explanatory diagrams will be found in Plates IV, V and VI.

The latitudes, longitudes and azimuths were computed by the formulæ given on pages 121 and 122, Volume II of the *Account of the Operations of the Great Trigonometrical Survey of India*, using the elements of the figure of the earth which will be found on page 127 of that volume. The elements of all trigonometrical stations employed are final except those of Chittagong, Akyab, Prome and Moulmein, and they either have been, or shortly will be, published in the printed records of the Great Trigonometrical Survey of India. In the case of those already published precise references are given. All the stations used were clearly identified, and their exact positions were recovered without any doubt.

### 2.

#### *Descriptions of Stations of the Connecting Triangulation and of those at which the Longitude Observations were taken.*

##### CALCUTTA CONNECTION.

THE LONGITUDE S. is in the enclosure of the building, No. 9 Park Street, occupied by the Government Mathematical Instrument Department, 20·3 feet due N. of the Calcutta Latitude s.

##### AGRA CONNECTION.

USIRA H.S. is a principal station of the Great Arc Meridional Series, Section 24° to 30°: it is situated in the Agra district on a shelving range of rocky hills running N.E. and S.W. The distances and bearings of the surrounding villages are:—Khand about 2 miles N.N.E.; Kheri about 1 mile N.N.W., in pargana Rupbas of the Bhurtpore territory; Usira close under the station to the west; and Nagla about 1 mile south, in pargana Jagner. The pillar is solid and 4½ feet high. It has a mark-stone at the top and also a mark engraved on the rock *in situ*.



**MADHONI H.S.** is a principal station of the Great Arc Meridional Series, Section  $24^{\circ}$  to  $30^{\circ}$ : it is situated in pargana Bhurtpore of the Bhurtpore territory, and is built on a sandstone ridge 8 miles N.W. of the celebrated fortress of Bhurtpore of which it commands as good a view as can be obtained at that distance. The station is named after the nearest village, and is denoted by a stone embedded in the ground and marked in the usual manner with a circle and dot.

**PANJ MAHAL S.** is situated on a gateway under the small N.E. dome at Fatehpur Sikri in the Agra district.

**DURA** or **DARHA S.** is situated on the N.W. corner of the S.E. turret of Indar Sing Ját's house, in the Agra district.

**AKBAR'S TOMB S.** is on the S.E. minaret of the gateway of Akbar Sháh's Mausoleum at Sikandra.

**BARARA S.** is situated on Mirza Mughal Beg's house on the centre of the highest building in the village of that name in the Agra district.

**MOTI MASJID S.** is situated at the centre of the floor of the S.W. minaret of the Moti Masjid in the Agra Fort, and is marked by a circle and dot in the usual manner.

**TAJ MAHAL MINAR S.** is situated about 2 feet east of the centre of the floor of the domed pavilion surmounting the N.W. minaret of the Taj Mahal, being one of the four at the corners of the marble platform on which the Taj stands. A circle and dot is engraved on a slab of the pavement.

**TELEGRAPH OFFICE S.** is situated on the roof of the Government Telegraph Office at Agra. Its distance from the N.W. corner of the upper platform on which it stands is 16 feet 6 inches, from the S.W. corner 17 feet 4 inches, and from the south front of the building 35 feet 10 inches.

**THE LONGITUDE S.** is on the same meridian as the Telegraph Office s. from which it is distant 232 feet 9 inches south, and is identical with that referred to in Volume IX.

#### HAZARIBAGH CONNECTION.

**KASIATU H.S.** is a principal station of the Calcutta Longitudinal Series: it is on the highest point of an isolated hill overlooking a nearly level and densely-wooded country, pargana Goría, district Hazaribagh. The pillar is solid and contains two marks, the upper 3·00 feet above the lower which is engraved on the rock *in situ*. In the present connection the station was observed to but not visited, and the angles of the principal series utilized.

**MAHUDA H.S.** (locally so called) is a principal station of the Calcutta Longitudinal Series: it is on the highest point of a range of hills running east and west, in the lands of the village of Gurri, district Hazaribagh. The station of Sindrauli of the Chendwar Meridional Series is on a spur of the hill about  $1\frac{1}{2}$  miles E. by N. The pillar is solid and contains two marks, the upper 3·00 feet above the lower which is engraved on the rock *in situ*. The village of Gurri is immediately below the station to the S., and the large village of Shahpur lies about 2 miles in the same direction. The station was found intact, and observations were taken from the intersection of the grooves on the rectangular protecting pillar.

**UDEWA H.S.** (or Hudwa), an intersected point of the Calcutta Longitudinal Series, is situated in the centre of a group of rocks on the highest part of the hill called Mastulwa-dongar, and is on the boundary of the village lands of Hesabar, Hudwa and Udepur, in the Karanpura pargana, Hazaribagh district. It is marked by a circle and dot engraved on a flat stone embedded flush with the surface of a platform of stones and earth about 8 feet high. The distances and azimuths of the adjacent villages are:—Hesabar 1 mile,  $67^{\circ} 56'$ ; Udepur  $1\frac{1}{2}$  miles,  $202^{\circ} 24'$ ; and Hudwa  $1\frac{1}{2}$  miles,  $241^{\circ} 51'$ .

**CHENDWAR H.S.** is a principal station of the Calcutta Longitudinal Series: it is on the highest and northernmost peak of a small, thickly-wooded and isolated range of hills running north and south; pargana Champa, district Hazaribagh. The village of Chendwar lies about 1 mile S.E., that of Marheta at the base of the hill to the S.W., and the station of Hazaribagh about 5 miles N.W. The station pillar is solid and was found intact. Observations were taken from the intersection of the grooves on the rectangular protecting pillar.

**SINDUR H.S.** is identical with the intersected point of the same name of the Calcutta Longitudinal Series: it is on the highest point of a hill called Kanhari-pahar, 2 miles N.E. of the Cantonment of Hazaribagh, and is on the boundary of the villages of Sindur and Jabara. The circle and dot is engraved on the rock *in situ* and surrounded by a paka platform 4 feet square.

**SILWARI H.S.** is on an isolated hill of the same name, so called after the village of Silwari situated  $\frac{1}{4}$  mile to the east, in the lands of which the station lies. The high road from Hazaribagh to Giridih passes by the foot of the hill on the N. side. At the N. extremity of the hill, 135 yards from the station, is Silwari Semaphore, an intersected point of the Calcutta Longitudinal Series. The station is marked by a circle and dot engraved on the rock *in situ* enclosed by a circular platform of stones and earth. The azimuths of surrounding objects are:—Silwari Semaphore  $176^{\circ} 58'$ , Silwari village  $250^{\circ} 43'$ , and Rock (highest point of hill)  $300^{\circ} 18' 26''$ .

**HAZARIBAGH S.** is situated close to the northern boundary of the Hazaribagh Cantonment, on the open flat between the old Telegraph Office and the Convent. The station consists of a solid masonry pillar 3 feet in diameter which contains two marks, one on its upper surface flush with the ground level, and the other 4 feet below it. A closing pillar of the usual dimensions has been erected over the station mark.

**THE LONGITUDE S.** is in the enclosure of the old Telegraph Office, 324.2 feet due south of Hazaribagh s.

#### FYZABAD CONNECTION.

**OREJHAR S.** is a principal station of the Gurwani Meridional Series: it is situated in the southern suburbs of the city of Ajodhya, and stands on a conical hill about 80 feet in height, named Orejhar from the fact, as is supposed, of its having been formed by the deposit of rubbish removed from the city. Towards the N. W. of the station is some high ground about 60 feet above the level of the surrounding country: this is said to be the site of the ancient city; it is now occupied as a burial ground, and has a secondary station fixed on it. The station is in thána and tahsíl Fyzabad, pargana Haveli, district Fyzabad. The station consists of a solid pillar of masonry carried up to a height of 8 feet above the ground level, and has a mark-stone at top, and others at 4, 8 and 10 feet respectively below this surface. The earthen platform which enclosed the masonry pillar was found completely destroyed and a temporary wooden erection was built for observing. The distances and bearings of the surrounding places are:—The city of Ajodhya  $1\frac{1}{2}$  miles, N.; the town of Fyzabad, nearly 3 miles W. by S.; and the village of Barchita, about  $\frac{1}{2}$  mile N.E.

**DARSANAGAR S.** is situated on the tower at the N. face of the enclosure wall in the bazar of the same name, and  $\frac{1}{2}$  a mile S. of Chirai village. The station is marked by a circle and dot engraved on the centre of the roof of the western staircase leading to the top of the N. gateway. A similar mark on the roof of the western staircase of the tower at the W. face of the enclosure wall was found intact. The latter is a secondary station of the Gurwani Meridional Series, called Darsanganj s.

**GULABARI S.** (or **SIRAJ-UD-DAULA'S MAUSOLEUM**) is situated in the city of Fyzabad: it is marked by a circle and dot engraved on the top surface of the N.E. minaret, one of the four uppermost, which is only 2 feet 7 inches square. The following measurements from the station mark were taken to the inner corners of the pillars supporting a canopy on which a small brass dome rests:—N.E. pillar 1.8 feet, N.W. pillar 1.7 feet, S.E. pillar 1.2 feet, and S.W. pillar 0.8 feet. The spire of this mausoleum, which is an intersected point of the Gurwani Meridional Series and therein called Fyzabad Dome, has also been used in the present connection.

**BEGAM'S MAUSOLEUM S.** (also known as Mukarba) is situated in the outskirts of the city of Fyzabad, on the road to Allahabad. The station is marked by a circle and dot engraved in the centre of the third opening (counting from the N.E. minar) of the wall enclosing the upper terrace. The spire of this mausoleum which is an intersected point of the Gurwani Meridional Series, called Fyzabad Great Dome, has also been used in the present connection.

**TELEGRAPH OFFICE S.** is denoted by a circle and dot engraved on the terraced roof of the signal room, and is 23.1 feet from the N.E. corner, 11.3 feet from the N.W. corner and 16.4 feet from the S.W. corner of the roof.

**THE LONGITUDE S.** is within a few yards of the S.W. corner of the verandah of the Telegraph Office: its distance and azimuth from the Telegraph Office s. are  $65.1$  feet,  $25^{\circ} 40'$ .

#### CHITTAGONG CONNECTION.

**ANDAOLI H.S.** (locally called Adalat-ka-pahar) is an intersected point of the Eastern Frontier Series, but is not described in the records of that series. The mark, a circle and dot, engraved on a stone embedded flush with the upper surface of a masonry pillar 3 feet in diameter and 1 foot high, was found undisturbed in 1883. The hill on which the station is situated is one of several low knolls, all flat and inconspicuous, covered with grass and shrubs. A large double-storied building with two turrets—formerly the Judge's court, but at the time of the observations used

as a school house—stands about 250 yards to the south of the station; there are no other buildings in the neighbourhood. The native town of Chittagong lies on a plain half a mile to the east.

**BATALI H.S.** is a secondary station of the Eastern Frontier Series, described as situated on the highest hill to the west of the civil station of Chittagong, and marked by a pillar 3 feet in diameter and 1 foot high with the usual circle and dot in the centre. The pillar and upper mark-stone had been removed, but the lower mark engraved on an embedded stone was found apparently untouched in 1883, when the pillar was repaired and a new upper mark-stone inserted therein. The station is situated on the highest part of a small conical hill a little higher than the low, flat ranges to the east of it which run from north to south. A large tree, a few feet to the south of the station, forms a conspicuous land-mark and can be seen from most points of the lower part of the Karnaphuli or Chittagong river. A long flat-roofed masonry building formerly the Telegraph Office but used as a Traveller's Bungalow at the time of the observations, stands about half a mile S.E. of Batali hill. The high road from Chittagong to Dacca *via* Comillah passes near the S.W. side of the hill and is about 100 feet below it.

*Note.*—The two hill stations of Andaoli and Batali were fixed from the principal stations of the Eastern Frontier Series for the purpose of observing points in the town and civil station of Chittagong.

**CLUB HOUSE S.** is on the roof of the Chittagong Club which is a masonry building: it is marked by a circle and dot cut on the southern portion of the roof. The station mark is 18·5 feet from the S.W. corner and 35·3 feet from the S.E. corner of the roof, and 20·3 feet from the western angle of the nearest skylight.

**TELEGRAPH OFFICE S.** is on the paka portion of the roof of the new Telegraph Office at Chittagong, and is denoted by a circle and dot cut in the masonry. The point is distant 23·5 feet from the S.W. corner of the roof.

**TELEGRAPH OFFICE COMPOUND S.** is situated on the Telegraph Office premises and about 400 feet east from the main building. It is marked by a 2 feet square platform flush with the surface of the ground in which is embedded a zinc telegraph insulator with a circle and dot engraved upon it. A marble slab, 15 inches square with a circle and the letters G. T. S. painted thereon, was (it is believed) placed in 1884 over the station mark.

**THE LONGITUDE S.** is situated 10·1 feet due north of the Telegraph Office Compound s., and 400 feet east of the main building.

#### JUBBULPORE CONNECTION.

**KARAUNDI H.S.** is a principal station of the Jubbulpore Meridional Series: it is situated about 3 miles E. by N. of the civil station of Jubbulpore. The pillar is solid and contains two mark-stones, the upper one being 3 feet above the lower which is on the ground level. The village of Karaundi lies about 1 mile N.E. of the hill.

**JUBBULPORE H.S.** is marked by a circle and dot engraved on a stone embedded flush with the ground at the S. extremity of the hill overlooking the regimental rifle butts. In the Jubbulpore Meridional Series it is called Jubbulpore Hill Mark. The old mark was found intact.

**SID-TORIA H.S.** is situated on a hill of that name about 1½ miles N.N.E. of the Telegraph Office at Jubbulpore, and is marked by a circle and dot engraved on an embedded stone. On the summit of the hill is a *fakir's* hut about 30 feet distant on an azimuth of 140°.

**TELEGRAPH OFFICE S.** is situated in the compound of the Telegraph Office, and consists of a masonry pillar 1 foot square and 1·5 feet below ground level. The distances and azimuths of the surrounding objects are:—Sid-Toria H.S. 196° 35'; S.W.; corner of clock room 84·4 feet, 207° 4'; east pillar of gate 221·7 feet, 40° 14'; pediment of Telegraph Master's Quarters 104° 41'; and meridian mark on S. face of collimator pillar 70·3 feet, 179° 59'.

**THE LONGITUDE S.** is situated on the meridian of the Telegraph Office s., 87·3 feet north of it, and is identical with that referred to in Volume IX.

#### JALPAIGURI CONNECTION.

**DHARAMPUR T.S.** is a principal station of the Assam Longitudinal Series: it is on the left bank of the Teesta from which it is distant ¾ of a mile. It is in the lands of the village Dharampur, thána Jalpaiguri, pargana Baikuntpur, district Jalpaiguri. The village of Bhakali (which was formerly an outpost station with a military guard) is 1½ miles N., and Gasbari (formerly called Moktarpara) is ½ mile W. The station was found in ruins, its site being marked by a mound of

broken brick and earth about 10 feet high. On the south side of this mound and about 8 feet from its centre are two large trees 60 feet high, said to have been originally two posts of the scaffolding erected for the observations taken in 1854-55. The mound between these two trees was dug away till the mark, a circle and dot engraved on a stone, was found at the ground level. A bamboo scaffolding was then built up to a height of 9 feet 8 inches on which the instrument was plumbed over the station. On the completion of the observations the ground mark was covered with an earthen vessel and a protecting mound of brick and earth heaped over it.

**MANTHAPARA S.** is a secondary station of the Assam Longitudinal Series: it is situated 100 yards S.E. of Manthapara village in the lands of which it lies, taluk Mandal Ghat, district Jalpaiguri. The junction of two water courses meeting in the Kurkuri is 0.4 mile W., and the railway line passes  $\frac{1}{4}$  mile E. The station site was marked by the mouth of an earthen vessel which was found on the ground level, protected by a low mound of earth. On the completion of the observations a solid masonry pillar 15 inches square and 3 feet high, was built containing three marks engraved on bricks, the first 1 foot below the ground level, the second flush with the ground and in the exact position of the old mark, and the third 2 feet above the second. The pillar was protected by a mound of earth 4 feet high and 10 feet in diameter at base. The distances and azimuths of the surrounding villages are:—Manthapara 100 yards,  $128^{\circ} 21'$ ; Baniapara 0.3 mile,  $141^{\circ} 16'$ ; Bakshipara 0.8 mile,  $156^{\circ} 40'$ ; Adapara 0.4 mile,  $189^{\circ} 42'$ ; and Madarganj 0.9 mile,  $288^{\circ} 12'$ .

**BHASARBARI S.** is a secondary station of the Assam Longitudinal Series: it is on a low mound in an open piece of cultivated ground in the lands of the village of Chondpara, taluk Khuria, thána and district Jalpaiguri. The high road from Jalpaiguri to Tentulia meets the Pangah river 1 mile to the west of the station, and a small water course which empties itself into the Pangah is 260 yards to the south. The station mark was found in the same condition as at Manthapara s., and on the completion of the observations a similar solid masonry pillar with a covering of earth was erected. The distances and azimuths of surrounding villages are:—Old site of Bhasarbari village 0.2 mile,  $24^{\circ}$ ; Fakirpara 0.7 mile,  $57^{\circ} 44'$ ; Chondpara 0.3 mile,  $76^{\circ} 54'$ ; Porapara 0.5 mile,  $249^{\circ} 0'$ ; Nakandebi 0.5 mile,  $321^{\circ} 14'$ ; and Bhasarbari 0.2 mile,  $353^{\circ} 44'$ .

**JALPAIGURI S.** is situated on "The Point" a projecting piece of land at the junction of the Teesta and Kulla rivers: it is marked by a circle and dot engraved on the terraced roof of the Deputy Magistrate's court house at 15 feet 7 inches from the N.W. corner, 6 feet 1 inch from the S.W. corner, 36 feet  $3\frac{1}{2}$  inches from the N.E. corner, and 33 feet  $1\frac{1}{2}$  inches from the S.E. corner.

**THE LONGITUDE S.** is a few yards north of the Telegraph Office which is situated between it and the court house: its distance and azimuth from Jalpaiguri s. are 244.0 feet,  $159^{\circ} 11'$ .

#### AKYAB CONNECTION.

**BORONGA H.S.** is a secondary station of the Eastern Frontier Series, but is not described in the records of that series. The mark-stone was found in 1883 apparently undisturbed, and a pile of stones was placed over it on the completion of the observations. The station is on the highest part of a range running along the whole length of an island called the West Boronga which is about 20 miles long and 4 miles across its widest part. The part of the hill on which the station stands is nearly 1000 feet above the sea level. Thirty yards to the west of the station stands a massive timber structure known as the Flagstaff Beacon disused at the time the observations were taken. A good sized Arakanés village named Peindaung is situated on a small creek about 2 miles to the N. E. of the station, from which a path leads over several ridges up to the station.

**CHECK MARK S.** is a secondary station of the Eastern Frontier Series, at which Tidal observations for verifying the trigonometrical heights were taken: it is situated on the right bank of the Koladan river, on Government lands in Buddermokan, a sub-division of the town of Akyab, between the property of Mr. Durnford to the north and of Mr. Motley to the south, and having the "Point Road" passing 500 feet to the west of it. There is a supplemental station in the grounds of Mr. Durnford to the N.W., distant 501 feet, and the measurements from these two points to the Gauge Post are respectively, from the Check Mark s. 516 feet to the north, and from the supplemental station 501 feet to the N.E. A masonry pillar  $3\frac{1}{2}$  feet in diameter and  $\frac{1}{2}$  foot high, having two mark-stones, one at the foundation and the other at the surface of the pillar, defines the station, over which a rectangular pillar has been built. In 1883 the rectangular pillar was removed by Mr. Keelan and the upper mark-stone found in position. The station having become surrounded by huts and bungalows it became necessary to erect a substantial scaffolding from which observations were taken, and on the completion of the work the mark-stone was protected by a rectangular masonry pillar 2 feet square at base and 3 feet high.

**WALKAN ISLAND H.S.** is situated on a hill on a small uninhabited island. A large conical rock, locally known as Tumble Down Dick rises from the top of the southern side of this same hill, and forms a conspicuous object at the

east side of the Akyab harbour. The station is on the northern end of the hill, and is marked by a stone with circle and dot engraved on it embedded flush with the ground.

**STONE JETTY S.** is situated on the harbour side of the Strand road and 108 feet north of the shore end of the Akyab Stone Jetty from whence it has been named. A stone embedded flush with the ground surface and having the usual circle and dot engraved on it, marks the station. In 1884 a pillar 2 feet square at base, tapering to 15 inches square at a height of 3 feet 9 inches, was built over this mark by the Municipal Engineer, and a marble slab with the usual circle and dot and letters G. T. S. was subsequently sent from Calcutta to surmount the pillar.

**TELEGRAPH OFFICE S.** not being visible from any other place but the Stone Jetty s. owing to numerous large trees and buildings, the only means of connecting it with the triangulation was by an observed angle and direct measurement. The station is situated in the Telegraph Office premises, about 25 feet from the S.W. corner of the main building. It is marked by a circle and dot cut on a zinc telegraph insulator embedded in a small masonry pillar flush with the ground. In 1884 a rectangular pillar 3.75 feet high was built over the station, carrying a marble slab on its surface with a circle and the letters G. T. S. painted thereon.

**THE LONGITUDE S.** is on the meridian of the Telegraph Office s., 50.1 feet north of it, and about 20 feet west of the centre of the main building.

#### MOULMEIN CONNECTION.

**THAKE H.S.** is a secondary station of the Eastern Frontier Series, and is described in the records of that series as 6 yards N.W. of a pagoda platform on a low hill and about half a mile from Thake village: it is marked by a stone with circle and dot engraved thereon and embedded in the ground. In 1883 the mark-stone was found intact buried flush with the ground, but instead of being 6 yards N.W. of the pagoda platform it was found to be 6 yards to the S.E. from the N. W. corner of the platform.

**MOULMEIN NO. 1 H.S.** is a secondary station of the Eastern Frontier Series, and is described in the records of that series as on a hill west of Shoaylando's pagoda and a short distance from the flagstaff on the hill, and consisting of a masonry pillar 40 inches in diameter and 2 feet high, with three mark-stones, one at base, one at summit, and one midway within the pillar. In 1883 a rectangular masonry pillar 3.5 feet high was found in good preservation over the circular pillar.

**MOULMEIN NO. 3 S.** is situated on the north-western side of the remains of some old earthworks surrounding the former Artillery barracks, and is denoted by a stone with a circle and dot engraved on it and embedded flush with the ground.

**MOULMEIN NO 4 S.** is situated on the western side of the remains of some old earthworks surrounding the former Artillery barracks, and is on the highest part of a small mound. It is denoted by a stone with a circle and dot engraved on it and embedded flush with the ground.

**MESS HOUSE S.** is situated on the premises of the buildings known as the old Artillery barracks, it is about 300 feet from the east end of the main building now used as the Mess House of the Moulmein Volunteer Rifles.

**THE LONGITUDE S.** is on the meridian of the Mess House s., 10.0 feet south of it. In 1884 a marble slab 15 inches square with a circle and the letters G. T. S. painted thereon was placed between the transit pillars.

#### PROME CONNECTION.

**PROME H.S.** is a station of the Thayetmyo and Cape Negrais Secondary Series, and is described in the records of that series as having two mark-stones with the usual circle and dot, one at the surface of the ground and the other 13 inches below it: it is situated on the Taungdaung range, on the right bank of the Irrawaddy. Lapanze village lies about 1 mile to the south-east. The upper mark-stone was found undisturbed in 1883, and on the conclusion of the observations a pile of stones was erected over the mark.

**KYAUNGQYI S.** is a station of the Thayetmyo and Cape Negrais Secondary Series, and in the records of that series is stated as "not described." From a manuscript in original signed by the observer and by the officer in charge of the Burma Party, it appears that the station is on the left bank of the Irrawaddy and 113 and 60 feet distant respectively from the N. W. and S.W. angles of the Promé Court-house. The station has two mark-stones, one at ground level and the other 1

foot lower. A masonry pillar 2 feet square and 1 foot high was erected over the station. In 1883 the pillar was found to be removed but the mark undisturbed, and on the conclusion of the observations a pillar smaller than that removed was built over the mark.

**MAJIZUDAUNG H.S.** is situated on a small mound to the south of, and close to, the village of Majizu standing on the right bank of the Irrawaddy river. A stone with circle and dot engraved on it and buried flush with the ground level denotes the point of observation. A pile of stones and earth covers the mark.

**PROME CLUB S.** is within the municipal limits of Prome, close to the steep left bank of the Irrawaddy, 120 feet south of the Prome Club and Reading Rooms and about the same distance south-west of the Police Office; the removal of these buildings seemed probable at the time the observations were taken, in order to make room for a pumping engine to supply the town of Prome with water. A mark-stone with circle and dot engraved on it was embedded flush with the ground in 1883, and in 1884 a masonry pillar 3 feet 10 inches high was built over this, and capped by a marble slab on which a circle and the letters G.T.S. were painted in black.

**THE LONGITUDE S.** is 105° 3' feet due east of Prome Club s., and about 120 feet south-east of the Prome Club and Reading room.

NOTE.—In Tables A, B and C and in Plates IV, V and VI the letters H.S., T.S. and S. denote Hill Station, Tower Station and Station respectively of the Principal Triangulation of the Great Trigonometrical Survey, while h.s. and s. apply to stations fixed by Secondary Triangulation.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles.*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
AGRA	Inch	1	Madhoni H.S.	24 53 31'3	— 0'3	— 1'5	24 53 29'5	4'7329264	54066'3	10'240
			Usira „	45 27 53'9	— 0'4	— 1'4	45 27 52'1	4'9617229	91563'6	17'342
			Panj Mahal s.	109 38 40'3	— 0'4	— 1'5	109 38 38'4	5'0827042*	120977'4	22'912
			Sums ...	180 0 5'5	— 1'1	— 4'4	180 0 0'0			
	„	2	Usira H.S.	31 35 43'8	— 0'1	— 0'2	31 35 43'5	4'4580199	28709'1	5'437
			Panj Mahal s.	67 46 19'8	— 0'1	— 0'2	67 46 19'5	4'7052207	50724'8	9'607
			Dura „	80 37 57'4	— 0'1	— 0'3	80 37 57'0	4'7329264	54066'3	10'240
			Sums ...	180 0 1'0	— 0'3	— 0'7	180 0 0'0			

\* This distance is taken from Triangle No. 37, page 15—A of the Great Arc Meridional Series, Section 24° to 30°, Synoptical Vol. II.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
AGRA	Inch 12	3	Panj Mahal s.	60 30 1'4	- 0'2	- 2'8	60 29 58'4	4'9646304	92178'7	17'458
			Dura "	103 46 23'6	- 0'2	- 2'8	103 46 20'6	5'0122661	102864'6	19'482
			Akbar's Tomb "	15 43 43'9	- 0'1	- 2'8	15 43 41'0	4'4580199	28709'1	5'437
			Sums ...	180 0 8'9	- 0'5	- 8'4	180 0 0'0			
	"	4	Panj Mahal s.	16 7 45'6	- 0'1	- 1'3	16 7 44'2	4'5514386	35599'1	6'742
			Akbar's Tomb "	37 15 40'8	- 0'2	- 1'3	37 15 39'3	4'8897815	77585'7	14'694
			Barara "	126 36 38'0	- 0'2	- 1'3	126 36 36'5	5'0122661	102864'6	19'482
			Sums ...	180 0 4'4	- 0'5	- 3'9	180 0 0'0			
	"	5	Akbar's Tomb s.	84 37 26'4	- 0'1	+ 0'3	84 37 26'6	4'6313300	42788'8	8'104
			Barara "	39 27 0'4	...	+ 0'3	39 27 0'7	4'4362967	27308'4	5'172
			Moti Masjid "	55 55 32'5	- 0'1	+ 0'3	55 55 32'7	4'5514386	35599'1	6'742
			Sums ...	179 59 59'3	- 0'2	+ 0'9	180 0 0'0			
	"	6	Akbar's Tomb s.	88 9 28'9	- 0'1	+ 1'6	88 9 30'4	4'6840686	48313'5	9'150
			Barara "	44 24 39'4	- 0'1	+ 1'5	44 24 40'8	4'5292699	33827'5	6'407
			Taj Mahal Minar "	47 25 47'3	- 0'1	+ 1'6	47 25 48'8	4'5514386	35599'1	6'742
			Sums ...	179 59 55'6	- 0'3	+ 4'7	180 0 0'0			
	"	7	Barara s.	4 57 39'0	...	- 1'8	4 57 37'2	3'8313903	6782'5	1'285
			Taj Mahal Minar "	33 3 32'2	...	- 1'9	33 3 30'3	4'6313346	42789'2	8'104
			Moti Masjid "	141 58 54'4	...	- 1'9	141 58 52'5	4'6840686	48313'5	9'150
			Sums ...	180 0 5'6	...	- 5'6	180 0 0'0			
	"	8	Akbar's Tomb s.	3 32 2'5	...	+ 3'1	3 32 5'6	3'8314498	6783'4	1'285
			Taj Mahal Minar "	14 22 15'1	...	+ 3'1	14 22 18'2	4'4362946	27308'3	5'172
			Moti Masjid "	162 5 33'1	...	+ 3'1	162 5 36'2	4'5292699	33827'5	6'407
			Sums ...	179 59 50'7	...	+ 9'3	180 0 0'0			
	"	9	Taj Mahal Minar s.	44 57 25'1	...	- 1'9	44 57 23'2	3'8358228	6852'1	1'298
			Moti Masjid "	90 39 42'6	...	- 2'0	90 39 40'6	3'9866393	9697'0	1'837
			Telegraph Office "	44 22 58'1	...	- 1'9	44 22 56'2	3'8314201*	6783'0	1'285
			Sums ...	180 0 5'8	...	- 5'8	180 0 0'0			

\* Mean deduced from Triangles Nos. 7 and 8.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
HAZARIBAGH	Inch	10	Kasiatu H.S.	... ..	...	...	43 57 48.2	4.9460099	88310.0	16.725
			Mahuda "	53 47 43.2	- 0.7	...	53 47 42.5	5.0113514	102648.2	19.441
			Udewa h.s.	82 14 30.0	- 0.7	...	82 14 29.3	5.1005323*	126046.9	23.873
			Sums ...	...	- 2.1	...	180 0 0.0			
	"	11	Mahuda H.S.	39 46 14.8	- 0.5	- 0.7	39 46 13.6	4.8745287	74908.1	14.187
			Chendwar "	48 57 14.4	- 0.5	- 0.8	48 57 13.1	4.9460175	88311.5	16.726
			Udewa h.s.	91 16 34.7	- 0.6	- 0.8	91 16 33.3	5.0684356*	117067.3	22.172
			Sums ...	180 0 3.9	- 1.6	- 2.3	180 0 0.0			
	"	12	Kasiatu H.S.	... ..	...	...	33 54 4.0	4.9633953	91916.9	17.409
			Mahuda "	96 12 14.7	- 0.9	...	96 12 13.8	5.2143962	163831.1	31.029
			Sindur h.s.	49 53 43.1	- 0.9	...	49 53 42.2	5.1005323*	126046.9	23.873
			Sums ...	...	- 2.7	...	180 0 0.0			
	"	13	Kasiatu H.S.	... ..	...	...	7 19 41.5	4.4082395	25600.0	4.848
			Chendwar "	54 42 54.3	- 0.3	...	54 42 54.0	5.2143938	163830.2	31.028
			Sindur h.s.	117 57 24.8	- 0.3	...	117 57 24.5	5.2486588*	177279.6	33.576
			Sums ...	...	- 0.9	...	180 0 0.0			
	"	14	Mahuda H.S.	42 24 31.5	- 0.4	+ 0.8	42 24 31.9	4.8147316	65272.7	12.362
			Udewa h.s.	71 44 40.1	- 0.5	+ 0.9	71 44 40.5	4.9633758	91912.8	17.408
			Sindur "	65 50 47.1	- 0.4	+ 0.9	65 50 47.6	4.9460137†	88310.8	16.726
			Sums ...	179 59 58.7	- 1.3	+ 2.6	180 0 0.0			
	"	15	Chendwar H.S.	58 27 50.2	- 0.1	- 1.7	58 27 48.4	4.8147285	65272.2	12.362
			Udewa h.s.	19 31 54.6	- 0.1	- 1.7	19 31 52.8	4.4082980	25603.4	4.849
			Sindur "	102 0 20.8	- 0.2	- 1.8	102 0 18.8	4.8745287	74908.1	14.187
			Sums ...	180 0 5.6	- 0.4	- 5.2	180 0 0.0			

\* This distance is taken from Triangle No. 72, page 27—B of the Calcutta Longitudinal Series Synoptical Vol. XII.

† Mean deduced from Triangles Nos. 10 and 11.



TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
HAZARIBAGH	Inch	16	Mahuda H.S.	5 45 16.8	— 0.1	+ 0.5	5 45 17.2	4.1566535	14343.4	2.717
			Chendwar "	49 10 6.8	— 0.1	+ 0.5	49 10 7.2	5.0343660	108234.6	20.499
			Silwari h.s.	125 4 35.1	— 0.1	+ 0.6	125 4 35.6	5.0684356*	117067.3	22.172
			Sums ...	179 59 58.7	— 0.3	+ 1.6	180 0 0.0			
	"	17	Mahuda H.S.	45 31 31.6	— 0.5	— 0.1	45 31 31.0	4.8933945	78233.8	14.817
			Udewa h.s.	80 49 9.3	— 0.6	— 0.2	80 49 8.5	5.0343647	108234.2	20.499
			Silwari "	53 39 21.1	— 0.5	— 0.1	53 39 20.5	4.9460137†	88310.8	16.726
			Sums ...	180 0 2.0	— 1.6	— 0.4	180 0 0.0			
	"	18	Chendwar H.S.	98 7 21.2	— 0.1	— 0.1	98 7 21.0	4.8933955	78234.0	14.817
			Udewa h.s.	10 27 25.4	— 0.1	— 0.1	10 27 25.2	4.1566450	14343.2	2.717
			Silwari "	71 25 14.0	— 0.1	— 0.1	71 25 13.8	4.8745287	74908.1	14.187
			Sums ...	180 0 0.6	— 0.3	— 0.3	180 0 0.0			
	"	19	Chendwar H.S.	39 39 31.0	...	+ 1.0	39 39 32.0	4.2354866	17198.3	3.257
			Sindur h.s.	32 9 23.0	...	+ 1.0	32 9 24.0	4.1566236	14342.5	2.716
			Silwari "	108 11 3.0	— 0.1	+ 1.1	108 11 4.0	4.4082688‡	25601.7	4.849
			Sums ...	179 59 57.0	— 0.1	+ 3.1	180 0 0.0			
	"	20	Chendwar H.S.	21 58 30.5	...	+ 0.7	21 58 31.2	4.0019103	10044.1	1.902
			Sindur h.s.	85 30 10.8	— 0.1	+ 0.8	85 30 11.5	4.4274591	26758.3	5.068
			Hazaribagh s.	72 31 16.6	...	+ 0.7	72 31 17.3	4.4082688‡	25601.7	4.849
			Sums ...	179 59 57.9	— 0.1	+ 2.2	180 0 0.0			
	"	21	Chendwar H.S.	61 38 1.5	...	+ 1.5	61 38 3.0	4.3729502	23602.1	4.470
			Silwari h.s.	86 2 21.9	— 0.1	+ 1.5	86 2 23.3	4.4274629	26758.6	5.068
			Hazaribagh s.	32 19 32.3	...	+ 1.4	32 19 33.7	4.1566407§	14343.0	2.716
			Sums ...	179 59 55.7	— 0.1	+ 4.4	180 0 0.0			
	"	22	Sindur h.s.	117 39 33.8	...	+ 0.3	117 39 34.1	4.3729547	23602.3	4.470
			Silwari "	22 8 41.1	...	+ 0.2	22 8 41.3	4.0019395	10044.8	1.902
			Hazaribagh s.	40 11 44.3	...	+ 0.3	40 11 44.6	4.2354866	17198.3	3.257
			Sums ...	179 59 59.2	...	+ 0.8	180 0 0.0			

\* This distance is taken from Triangle No. 72, page 27— of the Calcutta Longitudinal Series Synoptical Vol. XII.

† Mean deduced from Triangles Nos. 10 and 11.

‡ " " Nos. 13 and 15.

§ " " Nos. 16, 18 and 19.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
FYZABAD	Inch			° ' "	"	"	° ' "			
	5	23	Orejhar	S. 101 28 53	...	...	101 28 53	4' 264247	18375' 8	3' 480
			Fyzabad Dome	... ..	...	...	29 42 40	3' 968181	9293' 5	1' 760
			Darsannagar	S. 48 48 27	...	...	48 48 27	4' 149533*	14110' 2	2' 672
			Sums	... ..	...	...	180 0 0			
	"	24	Orejhar	S. 87 4 56	...	...	87 4 56	4' 321963	20987' 6	3' 975
			Fyzabad Great Dome	... ..	...	...	26 14 44	3' 968164	9293' 2	1' 760
			Darsannagar	S. 66 40 20	...	...	66 40 20	4' 285489†	19297' 0	3' 655
			Sums	... ..	...	...	180 0 0			
	"	25	Orejhar	S. 101 23 55	...	+ 1	101 23 56	4' 263677	18351' 7	3' 476
			Darsannagar	S. 48 50 16	...	+ 1	48 50 17	4' 149039	14094' 2	2' 669
			Gulabari	" 29 45 47	...	...	29 45 47	3' 968173‡	9293' 4	1' 760
			Sums	... ..	...	+ 2	180 0 0			
	"	26	Orejhar	S. 87 4 31	...	+ 1	87 4 32	4' 321342	20957' 6	3' 969
			Darsannagar	S. 66 38 16	...	+ 1	66 38 17	4' 284759	19264' 6	3' 649
			Begam's Mausoleum	" 26 17 11	...	...	26 17 11	3' 968173‡	9293' 4	1' 760
			Sums	... ..	...	+ 2	180 0 0			
	"	27	Orejhar	S. 14 19 24	...	+ 4	14 19 28	3' 819762	6603' 3	1' 251
			Begam's Mausoleum	S. 31 52 41	...	+ 4	31 52 45	4' 149081	14095' 5	2' 670
			Gulabari	" 133 47 42	...	+ 5	133 47 47	4' 284759	19264' 6	3' 649
			Sums	... ..	...	+ 13	180 0 0			
	"	28	Darsannagar	S. 17 48 0	...	+ 4	17 48 4	3' 819790	6603' 7	1' 251
			Gulabari	" 104 1 56	...	+ 4	104 2 0	4' 321316	20956' 4	3' 969
			Begam's Mausoleum	" 58 9 52	...	+ 4	58 9 56	4' 263677	18351' 7	3' 476
			Sums	... ..	...	+ 12	180 0 0			
	"	29	Begam's Mausoleum	S. 76 35 28	...	+ 1	76 35 29	3' 882237	7625' 0	1' 444
			Gulabari	" 46 0 38	...	...	46 0 38	3' 751251	5639' 6	1' 068
			Telegraph Office	" 57 23 53	...	...	57 23 53	3' 819776§	6603' 5	1' 251
			Sums	... ..	...	+ 1	180 0 0			

\* This distance is taken from Triangles Nos. 287 and 288, page 22—N } of the Gurwani Meridional Series Synoptical Vol. XVII.

† " " Triangle No. 283, " }

‡ Mean deduced from Triangles Nos. 23 and 24.

§ " " Triangles Nos. 27 and 28.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
CHITTAGONG	Inch	30	Batali	h.s. 38 22 29.8	...	- 0.1	38 22 29.7	3.6904918	4903	0.929
			Andaoli	" 72 36 34.5	...	- 0.1	72 36 34.4	3.8772174	7537	1.428
			Club House	s. 69 0 56.0	...	- 0.1	69 0 55.9	3.8677338*	7375	1.397
			Sums	...	180 0 0.3	...	- 0.3	180 0 0.0		
	"	31	Batali	h.s. 3 0 11.8	...	+ 0.1	3 0 11.9	2.6067174	404	0.077
			Club House	s. 99 22 44.9	...	+ 0.2	99 22 45.1	3.8815944	7614	1.442
			Telegraph Office	" 77 37 2.9	...	+ 0.1	77 37 3.0	3.8772174	7537	1.428
			Sums	...	179 59 59.6	...	+ 0.4	180 0 0.0		
	"	32	Telegraph Office	s. 66 8 27.5	...	- 0.2	66 8 27.3	2.6067145	404	0.077
			Club House	" 47 43 2.5	...	- 0.2	47 43 2.3	2.5146448	327	0.062
			Telegraph Office Compound	" 66 8 30.6	...	- 0.2	66 8 30.4	2.6067174	404	0.077
			Sums	...	180 0 0.6	...	- 0.6	180 0 0.0		
JUBBULPORE	5	33	Karaundi	H.S. 42 59 47	...	- 7	42 59 40	3.978693	9521.2	1.803
			Jubbulpore	h.s. 105 2 11	...	- 7	105 2 4	4.129829	13484.3	2.554
			Sid-Toria	" 31 58 23	...	- 7	31 58 16	3.868814†	7392.9	1.400
			Sums	...	180 0 21	...	- 21	180 0 0		
	"	34	Jubbulpore	h.s. 47 42 33	...	- 5	47 42 28	3.863912	7309.9	1.384
			Sid-Toria	" 57 49 21	...	- 5	57 49 16	3.922413	8364.0	1.584
			Telegraph Office	s. 74 28 22	...	- 6	74 28 16	3.978693	9521.2	1.803
			Sums	...	180 0 16	...	- 16	180 0 0		
JALPAIGURI	12	85	Dharampur	T.S. 49 9 40	...	...	49 9 40	4.353455	22566.0	4.274
			Manthapara	s. 98 12 18	...	- 1	98 12 17	4.470149	29522.2	5.591
			Jalpaiguri	" 32 38 3	...	...	32 38 3	4.206426‡	16085.2	3.046
			Sums	...	180 0 1	...	- 1	180 0 0		

\* Taken from the Field Computations of the Eastern Frontier Series, Season 1864-65, which are not in terms of the final reduction of the triangulation of the Great Trigonometrical Survey.

† This distance is taken from Triangle No. 84, page 17—x of the Jubbulpore Meridional Series Synoptical Vol. IX.

‡ " " " No. 101, page 18—x of the Assam Longitudinal Series Synoptical Vol. XXII.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
JALPAIGURI	Inch	36	Manthapara	s. 42 31 12	...	+ 1	42 31 13	4'195615	15689'7	2'972
			Bhasarbari	" 76 24 53	...	+ 1	76 24 54	4'353440	22565'2	4'274
			Jalpaiguri	" 61 3 52	...	+ 1	61 3 53	4'307855*	20316'8	3'848
			Sums	... 179 59 57	...	+ 3	180 0 0			
AKYAB	12	37	Boronga	h.s. 37 4 19'9	...	- 1'3	37 4 18'6	4'4268010	26718	5'060
			Check Mark	s. 77 11 26'5	...	- 1'4	77 11 25'1	4'6356708	43219	8'185
			Walkan Island	h.s. 65 44 17'6	...	- 1'3	65 44 16'3	4'6064564†	40407	7'653
			Sums	... 180 0 4'0	...	- 4'0	180 0 0'0			
	"	38	Walkan Island	h.s. 80 7 48'8	...	+ 0'3	80 7 49'1	4'6635469	46084	8'728
			Boronga	" 32 21 32'9	...	+ 0'2	32 21 33'1	4'3985591	25036	4'742
			Stone Jetty	s. 67 30 37'5	...	+ 0'3	67 30 37'8	4'6356708	43219	8'185
			Sums	... 179 59 59'2	...	+ 0'8	180 0 0'0			
	"	39	Walkan Island	h.s. 14 23 31'2	...	- 0'2	14 23 31'0	3'8256952	6694	1'268
			Check Mark	s. 68 22 15'0	...	- 0'3	68 22 14'7	4'3985657	25036	4'742
			Stone Jetty	" 97 14 14'6	...	- 0'3	97 14 14'3	4'4268010	26718	5'060
			Sums	... 180 0 0'8	...	- 0'8	180 0 0'0			
	"	40	Boronga	h.s. 4 42 47'0	...	- 1'8	4 42 45'2	3'8257419	6695	1'268
			Check Mark	s. 145 33 41'5	...	- 1'9	145 33 39'6	4'6635523	46084	8'728
			Stone Jetty	" 29 43 37'1	...	- 1'9	29 43 35'2	4'6064564	40407	7'653
			Sums	... 180 0 5'6	...	- 5'6	180 0 0'0			
	"	41	Check Mark	s. ...	...	...	13 57 40'3	3'2304645‡	1700	0'322
			Stone Jetty	" 94 13 26'1	...	...	94 13 26'1	3'8467895	7027	1'331
			Telegraph Office	" ...	...	...	71 48 53'6	3'8257186§	6695	1'268
			Sums	... ...	...	...	180 0 0'0			

\* This distance is taken from Triangle No. 100, page 18—x of the Assam Longitudinal Series Synoptical Vol. XXII.

† Taken from the Field Computations of the Eastern Frontier Series, Season 1866-67, which are not in terms of the final reduction of the triangulation of the Great Trigonometrical Survey.

‡ This distance was measured with a 100-foot chain, and checked by traverse.

§ Mean deduced from Triangles Nos. 39 and 40.

TABLE A. TRIANGULATION FOR THE CONNECTION OF LONGITUDE STATIONS.

*Computation of Triangles—(Continued).*

Longitude Station to be fixed	Theodolite used	No. of Triangle	Name of Station	Observed Angle	Corrections for		Corrected Angle	Distance in		
					Spherical Excess	Observation Error		Log Feet	Feet	Miles
MOULMEIN	Inch 12	42	Thako h.s.	22 29 26.9	...	...	22 29 26.9	3.9146500	8216	1.556
			Moulmein No. 1 "	65 57 20.6	...	...	65 57 20.6	4.2925592	19614	3.715
			Moulmein No. 3 s.	91 33 12.5	...	...	91 33 12.5	4.3318189*	21469	4.066
			Sums ...	180 0 0.0	...	...	180 0 0.0			
	" 43		Moulmein No. 1 h.s.	4 42 32.9	...	- 0.3	4 42 32.6	2.8421812	695	0.132
			Moulmein No. 3 s.	71 13 52.7	...	- 0.3	71 13 52.4	3.9041286	8019	1.519
			Moulmein No. 4 "	104 3 35.4	...	- 0.4	104 3 35.0	3.9146500	8216	1.556
			Sums ...	180 0 1.0	...	- 1.0	180 0 0.0			
	" 44		Moulmein No. 3 s.	93 52 20.6	...	- 0.9	93 52 19.7	3.0945365	1243	0.235
			Moulmein No. 4 "	52 12 32.0	...	- 0.8	52 12 31.2	2.9932922	985	0.186
			Mess House "	33 55 9.9	...	- 0.8	33 55 9.1	2.8421812	695	0.132
			Sums ...	180 0 2.5	...	- 2.5	180 0 0.0			
PROME	12	45	Prome h.s.	15 13 47.0	...	- 1.4	15 13 45.6	3.5721605	3734	0.707
			Kyaunggyi s.	40 3 32.7	...	- 1.4	40 3 31.3	3.9613254	9148	1.733
			Majizudaung h.s.	124 42 44.6	...	- 1.5	124 42 43.1	4.0676132†	11685	2.213
			Sums ...	180 0 4.3	...	- 4.3	180 0 0.0			
	" 46		Prome h.s.	3 12 4.0	...	+ 0.7	3 12 4.7	2.8754240	751	0.142
			Kyaunggyi s.	116 25 17.6	...	+ 0.7	116 25 18.3	4.0805319	12037	2.280
			Prome Club "	60 22 36.3	...	+ 0.7	60 22 37.0	4.0676132	11685	2.213
			Sums ...	179 59 57.9	...	+ 2.1	180 0 0.0			
	" 47		Majizudaung h.s.	11 35 16.0	...	+ 0.8	11 35 16.8	2.8753594	751	0.142
			Kyaunggyi s.	76 21 44.9	...	+ 0.8	76 21 45.7	3.5600188	3631	0.688
			Prome Club "	92 2 56.6	...	+ 0.9	92 2 57.5	3.5721605	3734	0.707
			Sums ...	179 59 57.5	...	+ 2.5	180 0 0.0			
	" 48		Majizudaung h.s.	136 18 0.5	...	- 1.7	136 17 58.8	4.0805246	12037	2.280
			Prome "	12 1 43.0	...	- 1.6	12 1 41.4	3.5600001	3631	0.688
			Prome Club s.	31 40 21.4	...	- 1.6*	31 40 19.8	3.9613254	9148	1.733
			Sums ...	180 0 4.9	...	- 4.9	180 0 0.0			

\* Taken from the Field Computations of the Eastern Frontier Series, Season 1875-76, which are not in terms of the final reduction of the triangulation of the Great Trigonometrical Survey.

† Taken from the Field Computations of the Secondary Triangulation Thayetmyo via Prome, Myanaung, towards Bassein and Cape Negrais, Season 1875-76, which are not in terms of the final reduction of the Triangulation of the Great Trigonometrical Survey.

## APPENDIX.

**TABLE B. TRIANGULATION FOR THE CONNECTION OF LO**  
*Geodetic Latitudes, Longitudes and Azim.*

Longitude Station to be fixed	Name of Station	No. of Triangle	Latitude North	Longitude East of Greenwich	
AGRA	Usira	I.S.*	26° 57' 6" 22	77° 40' 19" 76	Of Mu
	Madhoni	" *	27° 13' 49" 65	77° 28' 8" 26	" Us.
	Panj Mahal	s. 1	27° 5' 49" 20	77° 42' 28" 12	" "
	Dura	" 2	27° 3' 7" 55	77° 46' 49" 43	" Par
	Akbar's Tomb	" 3	27° 13' 12" 63	77° 59' 33" 51	" "
	Barara	" 4	27° 7' 58" 47	77° 56' 34" 60	" Ab'
	Moti Masjid	" 5, 7, 8	27° 10' 47" 74	78° 3' 48" 92	" "
	Taj Mahal Minar	" 6	27° 10' 30" 91	78° 5' 1" 64	" "
	Telegraph Office	" 9	27° 9' 42" 24	78° 3' 29" 07	
HAZARIBAGH	Kasiatu	I.S.†	23° 58' 29" 68	84° 56' 46" 76	Of
	Mahuda	" †	24° 11' 32" 21	85° 14' 26" 93	" C
	Udewa	h.s. 10, 11	23° 56' 58" 11	85° 15' 9" 04	" Mu
	Chendwar	I.S.†	23° 57' 13" 75	85° 28' 36" 47	" "
	Sindur	h.s. 12-15	24° 0' 47" 21	85° 26' 7" 28	" Udewa
	Silwari	" 16-19	23° 59' 34" 82	85° 28' 55" 21	" Chend
	Hazaribagh	s. 20-22	23° 59' 47" 01	85° 24' 41" 01	" "
FYZABAD	Orejhar	S. ‡	26° 46' 55" 54	82° 14' 34" 78	Of Darst
	Fyzabad Domo	s. ‡	26° 46' 46" 6	82° 11' 59" 4	" "
	Darsannagar	" 23, 24	26° 45' 26" 68	82° 15' 1" 55	" Orejhar
	Fyzabad Great Dome	" ‡	26° 45' 56" 3	82° 11' 12" 3	" "
	Gulabari	" 25, 27	26° 46' 46" 44	82° 11' 59" 59	" "
	Begam's Mausoleum	" 26, 28	26° 45' 56" 37	82° 11' 12" 69	" "
	Telegraph Office	" 29	26° 46' 41" 24	82° 10' 35" 64	" Begam'
CHITTAGONG	Andaoli	h.s.§	22° 21' 11" 00	91° 52' 36" 70	Of Ba
	Batali	" §	22° 20' 44" 40	91° 51' 23" 50	" A
	Club House	s. 30	22° 20' 22" 50	91° 52' 40" 26	" B
	Telegraph Office	" 31	22° 20' 18" 52	91° 52' 39" 68	" "
	Telegraph Office Compound	" 32	22° 20' 19" 43	91° 52' 43" 03	" "
JUBBULPORE	Karaundi	I.S.	23° 10' 40" 02	80° 2' 10" 52	Of
	Jubbulpore	h.s.	23° 10' 7" 70	80° 0' 59" 42	" "

\* For geodetic elements of these stations *vide* page 20—4 of the Great Arc Meridional Series, Section '

† For " " " " pages 99—R, 102—R and 92—R of the Calcutta Lc

‡ For " " " " " 43-N and 35-N of the Gurwani Meridional

§ The " " " are taken from the Field Computations of which are not in terms of the final reduction of the triangulation of the Great

For geodetic elements of these stations *vide* ... and 89

# APPENDIX.

## RELATION FOR THE CONNECTION OF LONGITUDE STATIONS.

### *Latitudes, Longitudes and Azimuths.*—(Continued).

	No. of Triangle	Latitude North	Longitude East of Greenwich	Azimuth	
		° ' "	° ' "		° ' "
h.s.	33	23 11 18.66	79 59 52.16	Of Jubbulpore	h.s. 318 46 14
s.	34	23 10 9.24	79 59 29.79		
T.S.*		26 27 26.06	88 50 2.87	Of Manthapara	s. 92 25 42
s. *		26 27 32.78	88 47 6.03	„ Dharampur	T.S. 272 24 23
„ *		26 29 46.55	88 44 18.98	„ Manthapara	s. 311 39 16
„	35, 36	26 31 15.13	88 46 40.90	„ „	„ 354 11 33
s.†		20 1 10.1	92 59 43.1	Of Check Mark	s. 152 16 56.54
†		20 7 4.7	92 56 25.9	„ Boronga	h.s. 332 15 48.59
h.s.	37	20 8 12.84	93 0 56.85	„ „	„ 9 21 40.4
s.	38-40	20 8 10.58	92 56 34.08	„ Check Mark	s. 6 42 12.1
„	41	20 8 13.79	92 56 16.57	„ Stone Jetty	„ 280 55 32.0
h.s.†		16 30 58.03	97 43 15.74	Of Moulmein	No. 1 h.s. 51 29 44
No. 1 „, †		16 28 45.51	97 40 23.03	„ Thake	h.s. 231 28 57
No. 3 s.	42	16 30 4.37	97 40 1.94	„ Moulmein	No. 1 h.s. 345 31 30
No. 4 „	43	16 30 0.60	97 39 55.96	„ „	No. 1 „ 340 48 55
„	44	16 29 56.59	97 40 8.05	„ „	No. 3 s. 142 53 4
h.s.†		18 50 1.07	95 13 28.14	Of Kyaunggyi	s. 289 26 15
s. †		18 49 22.50	95 15 22.87	„ Promo	h.s. 109 26 48
h.s.	45	18 49 9.48	95 14 46.48	„ „	„ 124 40 24
s.	46-48	18 49 15.12	95 15 23.81	„ Kyaunggyi	s. 173 1 33

are taken from the results of the final reduction of the Assam Longitudinal Series, Synoptical Vol. XXII.

Field Computations of the Eastern Frontier Series for Seasons 1864-65, 1866-67 and 1875-76, the triangulation of the Great Trigonometrical Survey.

are taken from the Field Computations of the Secondary Triangulation Thayetmyo and Prome, Myanaung towards are not in final terms.

Chittagong, Prome and Moulmein are in the preliminary terms of the side Gojalia-Tulamura (about lat. 23° 10') final terms the following corrections are needed:—

Gojalia, Latitude	— 1.08	Tulamura, Latitude	— 1.09
Longitude	+ 0.85	Longitude	+ 0.85
Azimuth	+ 6.19	Side	+ 0.000001

will have to be applied hereafter to the elements given in this table.

TABLE C. DEDUCTION OF THE GEODETIC ELEMENTS OF THE LONGITUDE STATIONS.

Name of Station	Latitude North	Longitude East of Greenwich	REMARKS
Calcutta Latitude s.* ... ..	22 32 54.67	88 23 55.95	The Longitude s. is 20.3 feet due north of the Latitude s.
Reduction to Longitude s. ...	+ 0.20	0.00	
Calcutta Longitude s. ... ..	22 32 54.87	88 23 55.95	
Agra Telegraph Office s. ... ..	27 9 42.24	78 3 29.07	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	- 2.31	0.00	The Longitude s. is 232 feet 9 inches due south of the Telegraph Office s., <i>vide page (4)</i> .
Agra Longitude s. ... ..	27 9 39.93	78 3 29.07	
Hazaribagh s. ... ..	23 59 47.01	85 24 41.01	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	- 3.21	0.00	The Longitude s. is 324.2 feet due south of Hazaribagh s., <i>vide page (5)</i> .
Hazaribagh Longitude s. ... ..	23 59 43.80	85 24 41.01	
Fyzabad Telegraph Office s. ... ..	26 46 41.24	82 10 35.64	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	- 0.58	- 0.31	The Longitude s. is 58.7 feet south and 28.2 feet west of the Telegraph Office s., <i>vide page (5)</i> .
Fyzabad Longitude s. ... ..	26 46 40.66	82 10 35.33	
Chittagong Telegraph Office Compound s. ... ..	22 20 19.43	91 52 44.03	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	+ 0.10	0.00	The Longitude s. is 10.1 feet north, and on the meridian of the Telegraph Office Compound s., 400 feet east of the main building, <i>vide page (6)</i> .
Chittagong Longitude s. ... ..	22 20 19.53	91 52 43.03	
Jubbulpore Telegraph Office s. ... ..	23 10 9.24	79 59 29.79	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	+ 0.86	0.00	The Longitude s. is 87.3 feet due north of the Telegraph Office s., <i>vide page (6)</i> .
Jubbulpore Longitude s. ... ..	23 10 10.10	79 59 29.79	
Jalpaiguri s. ... ..	26 31 15.13	88 46 40.90	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	+ 2.26	- 0.95	The Longitude s. is 228.1 feet north and 86.7 feet west of Jalpaiguri s., <i>vide page (7)</i> .
Jalpaiguri Longitude s. ... ..	26 31 17.39	88 46 39.95	
Akyab Telegraph Office s. ... ..	20 8 13.79	92 56 16.57	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	+ 0.50	0.00	The Longitude s. is 50.1 feet north, and on the meridian of the Telegraph Office s., in the Telegraph Office premises, and about 20 feet west of the centre of the main building, <i>vide page (8)</i> .
Akyab Longitude s. ... ..	20 8 14.29	92 56 16.57	
Moulmein Mess House s. ... ..	16 29 56.59	97 40 8.05	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	- 0.10	0.00	The Longitude s. is 10.0 feet south, and on the meridian of the Mess House s., and is about 300 feet from the east end of the main building of the premises of the old Artillery Barracks at Moulmein, <i>vide page (8)</i> .
Moulmein Longitude s. ... ..	16 29 56.49	97 40 8.05	

\* The geodetic elements of the Calcutta Latitude s. are taken from page 90—B, of the Calcutta Longitudinal Series, Synoptical Vol. XII.



TABLE C. DEDUCTION OF THE GEODETIC ELEMENTS OF THE LONGITUDE STATIONS—(Continued).

Name of Station	Latitude North	Longitude East of Greenwich	REMARKS
Prome Club s. ... ..	° ' " 18 49 15.12	° ' " 95 15 23.81	Fixed by special triangulation ( <i>vide Tables A and B</i> ).
Reduction to Longitude s. ...	0.00	+ 1.10	The Longitude s. is 105.3 feet due east of the Prome Club s. and about 120 feet south-east of the Prome Club and Reading room, <i>vide</i> page (9).
Prome Longitude s. ... ..	18 49 15.12	95 15 24.91	

NOTE.—The geodetic elements of Akyab, Chittagong, Prome and Moulmein are in the preliminary terms of the side Gojalia-Tulamura (about lat. 23° 10') of the Eastern Frontier Series, to reduce which to final terms the following corrections are needed:—

Gojalia, Latitude	— 1.08	Tulamura, Latitude	— 1.09
Longitude	+ 0.85	Longitude	+ 0.85
Azimuth	+ 6.19	Side	+ 0.0000001

in consequence of these differences small corrections will have to be applied hereafter to the elements given in this table.

TABLE D. COMPARISON OF GEODETIC AND ELECTRO-TELEGRAPHIC VALUES OF ARCS, AND DEDUCTION OF CIRCUIT ERRORS.

Name of Arc	Number of Arc	Geodetic Value	Electro-Telegraphic Value	Geodetic minus Electro-Telegraphic Value		Circuit Error
				In Time	In Arc	
Fyzabad-Agra ... ..	( 2 )	<sup>m</sup> 16 28.417	<sup>m</sup> 16 27.926	+ 0.491	+ 7.365	
Jubbulpore-Agra ... ..	( 1 )	7 44.048	7 42.993	+ 1.055	+ 15.825	
Fyzabad-Jubbulpore ... ..	( 3 )	8 44.369	8 44.642	— 0.273	— 4.095	+ 0.291
Hazaribagh-Jubbulpore ... ..	( 5 )	21 40.748	21 40.912	— 0.164	— 2.460	
Fyzabad-Jubbulpore ... ..	( 3 )	8 44.369	8 44.642			
Hazaribagh-Fyzabad ... ..	( 4 )	12 56.378	12 55.714	+ 0.664	+ 9.960	+ 0.556
Jalpaiguri-Hazaribagh ... ..	( 7 )	13 27.929	13 27.078	+ 0.851	+ 12.765	
Calcutta-Hazaribagh ... ..	( 6 )	11 56.996	11 56.725	+ 0.271	+ 4.065	
Jalpaiguri-Calcutta ... ..	( 8 )	1 30.933	1 30.399	+ 0.534	+ 8.010	— 0.046
Jalpaiguri-Fyzabad ... ..	( 9 )	26 24.308	26 22.979	+ 1.329	+ 19.935	
Calcutta-Fyzabad ... ..	( 13 )	24 53.375	24 52.664	+ 0.711	+ 10.665	
Jalpaiguri-Calcutta ... ..	( 10 )	1 30.933	1 30.283	+ 0.650	+ 9.750	+ 0.032
Calcutta-Jubbulpore ... ..	( 14 )	33 37.744	33 37.662	+ 0.082	+ 1.230	
Calcutta-Fyzabad ... ..	( 13 )	24 53.375	24 52.664			
Fyzabad-Jubbulpore ... ..	( 15 )	8 44.369	8 44.929	— 0.560	— 8.400	+ 0.069
Jalpaiguri-Fyzabad ... ..	( 9 )	26 24.308	26 22.979			
Jalpaiguri-Hazaribagh ... ..	( 7 )	13 27.929	13 27.078			
Hazaribagh-Fyzabad ... ..	( 4 )	12 56.378	12 55.714	.....	.....	+ 0.187
Calcutta-Fyzabad ... ..	( 13 )	24 53.375	24 52.664			
Calcutta-Hazaribagh ... ..	( 6 )	11 56.996	11 56.725			
Hazaribagh-Fyzabad ... ..	( 4 )	12 56.378	12 55.714	.....	.....	+ 0.225

TABLE D. COMPARISON OF GEODETIC AND ELECTRO-TELEGRAPHIC VALUES OF ARCS, AND DEDUCTION OF CIRCUIT ERRORS—(Continued).

Name of Arc	Number of Arc	Geodetic Value	Electro-Telegraphic Value	Geodetic minus Electro-Telegraphic Value		Circuit Error
				In Time	In Arc	
Calcutta-Jubbulpore ... ..	(14)	<i>m s</i> 33 37.744	<i>m s</i> 33 37.662	<i>s</i>	"	<i>s</i>
Calcutta-Hazaribagh ... ..	(6)	11 56.996	11 56.725			
Hazaribagh-Jubbulpore ... ..	(5)	21 40.748	21 40.912	.....	.....	+ 0.025
Fyzabad-Agra ... ..	(18)	16 28.417	16 27.990	+ 0.427	+ 6.405	
Jubbulpore-Agra ... ..	(1)	7 44.048	7 42.993			
Fyzabad-Jubbulpore ... ..	(15)	8 44.369	8 44.929	.....	.....	+ 0.068
Chittagong-Calcutta ... ..	(12)	13 55.138	13 55.126	+ 0.012	+ 0.180	
Chittagong-Jalpaiguri ... ..	(11)	12 24.205	12 24.816	- 0.611	- 9.165	
Jalpaiguri-Calcutta ... ..	(10)	1 30.933	1 30.283	.....	.....	+ 0.027
Akyab-Calcutta ... ..	(17)	18 9.375	18 9.353	+ 0.022	+ 0.330	
Akyab-Chittagong ... ..	(18)	4 14.236	4 14.187	+ 0.049	+ 0.735	
Chittagong-Calcutta ... ..	(12)	13 55.138	13 55.126	.....	.....	+ 0.040
Prome-Chittagong ... ..	(19)	13 30.792	13 30.497	+ 0.295	+ 4.425	
Prome-Akyab ... ..	(20)	9 16.556	9 16.229	+ 0.327	+ 4.905	
Akyab-Chittagong ... ..	(18)	4 14.236	4 14.187	.....	.....	+ 0.081
Moulmein-Akyab ... ..	(21)	18 55.432	18 54.932	+ 0.500	+ 7.500	
Prome-Akyab ... ..	(20)	9 16.556	9 16.229			
Moulmein-Prome ... ..	(22)	9 38.876	9 38.667	+ 0.209	+ 3.135	+ 0.036

## 3.

*On the Errors in  $\Delta L$  caused by Armature-time and the Retardation of the Electric Current.*

Let  $A_e$ ,  $B_e$ ,  $S_e$ ,  $R_e$  represent the errors due to the armature-times of  $A$  pen,  $B$  pen, the sending relay, the receiving relay and  $Q_e$  the pen equation at the eastern station, and let the same letters with subscript  $w$ , represent the same things at the western station, and let  $\rho$  be the retardation of the current along the line wire, necessarily assumed to be the same in both directions. According to the system employed in the present volume four groups of stars are observed each night, in the first two of which the eastern clock graduates both chronographs, and in the last two the western clock. The errors appertaining to the clock and star signals respectively, in consequence of armature-time and retardation, are shown in the annexed tabular statement. The pen equation is supposed to remain constant during the observations.

Number of Group	Clock in use	Pen used by Clock at both Stations	Pen used by Observer at both Stations	Errors caused by Armature-time and Retardation			
				At East Station		At West Station	
				In Clock Signals	In Star Signals	In Clock Signals	In Star Signals
1st Group	E.	$A$	$B$	$A_e$	$B_e + Q_e$	$S_e + \rho + R_w + A_w$	$B_w + Q_w$
2nd "	E.	$B$	$A$	$B_e$	$A_e - Q_e$	$S_e + \rho + R_w + B_w$	$A_w - Q_w$
3rd "	W.	$A$	$B$	$S_w + \rho + R_e + A_e$	$B_e + Q_e$	$A_w$	$B_w + Q_w$
4th "	W.	$B$	$A$	$S_w + \rho + R_e + B_e$	$A_e - Q_e$	$B_w$	$A_w - Q_w$

The errors in the recorded times of transits will therefore be :—

Number of Group	At East Station	At West Station
1st Group	$B_e + Q_e - A_e$	$B_w + Q_w - S_e - \rho - R_w - A_w$
2nd „	$A_e - Q_e - B_e$	$A_w - Q_w - S_e - \rho - R_w - B_w$
3rd „	$B_e + Q_e - S_w - \rho - R_e - A_e$	$B_w + Q_w - A_w$
4th „	$A_e - Q_e - S_w - \rho - R_e - B_e$	$A_w - Q_w - B_w$

Hence the errors in the deduced longitude which is obtained by subtracting the time at the East Station from that at the West will be as follows :—

$$\begin{array}{llll}
 \text{By 1st Group} & \dots & A_e - A_w - B_e + B_w - S_e - \rho - R_w - Q_e + Q_w \\
 \text{„ 2nd „} & \dots & -A_e + A_w + B_e - B_w - S_e - \rho - R_w + Q_e - Q_w \\
 \text{„ 3rd „} & \dots & A_e - A_w - B_e + B_w + S_w + \rho + R_e - Q_e + Q_w \\
 \text{„ 4th „} & \dots & -A_e + A_w + B_e - B_w + S_w + \rho + R_e + Q_e - Q_w
 \end{array}$$

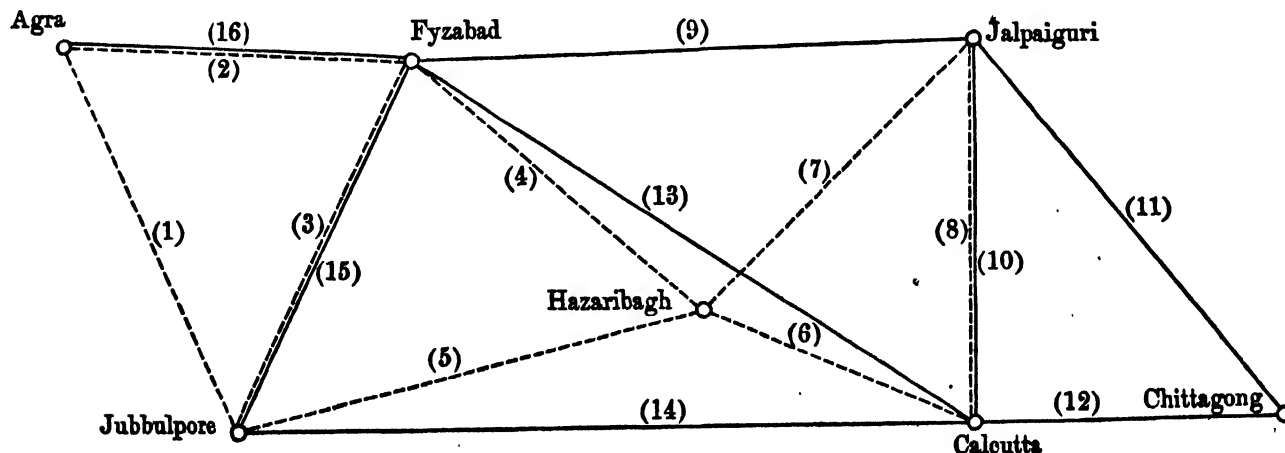
Hence it follows that if the first two groups only are taken the mean result is in error by  $S_e + \rho + R_w$ , and if the last two are taken, by  $-S_w - \rho - R_e$ .

The mean of the four will be in error by  $\frac{1}{2} \{ S_e - S_w - R_e + R_w \}$ . Now these four quantities are all positive, and the relays are so adjusted that each is very small; and as two are additive and two subtractive, the quantity within the brackets must be very minute indeed.

#### 4.

##### *On the Rejection of some doubtful Arcs of Season 1881-82.*

The circuit errors resulting from the operations of the Season 1881-82 having proved abnormally large, and altogether in excess of what could be expected or accounted for, it was considered desirable to remeasure during the Season 1882-83 those arcs which on examination seemed to be most probably in fault, and also to add some more arcs to strengthen the figure around Hazaribagh, and to aid in localizing the errors alluded to above. With this view it was determined to revise the arcs Fyzabad-Agra, Fyzabad-Jubbulpore and Jalpaiguri-Calcutta, and to measure in addition the arcs Jalpaiguri-Fyzabad, Calcutta-Fyzabad, and Calcutta-Jubbulpore. In the diagram those arcs measured during 1882-83 are shown by firm lines, and those previously measured by dotted lines. The arcs have a number for reference attached to each; these numbers are the same as those in *Table D* and are adhered to throughout this volume. The arcs which have been twice measured have two numbers attached to each.



The following results of the measurements are taken from *Table D*, and repeated here for ready reference :—

1881-82.				1882-83.	
Fyzabad-Agra	..	..	(2) 16 <sup>m</sup> 27 <sup>s</sup> ·926	..	(16) 16 <sup>m</sup> 27 <sup>s</sup> ·990
Fyzabad-Jubbulpore	..	..	(3) 8 44·642	..	(15) 8 44·929
Hazaribagh-Fyzabad	..	..	(4) 12 55·714	..	..
Hazaribagh-Jubbulpore	..	..	(5) 21 40·912	..	..
Calcutta-Hazaribagh	..	..	(6) 11 56·725	..	..
Jalpaiguri-Hazaribagh	..	..	(7) 13 27·078	..	..
Jalpaiguri-Calcutta	..	..	(8) 1 30·399	..	(10) 1 30·283
Jalpaiguri-Fyzabad	..	..	..	..	(9) 26 22·979
Calcutta-Fyzabad	..	..	..	..	(13) 24 52·664
Calcutta-Jubbulpore	..	..	..	..	(14) 33 37·662
Jubbulpore-Agra	(1)	7 <sup>m</sup> 42 <sup>s</sup> ·993	previously measured.		

The circuit errors of 1881-82 are as follows :—

$$\begin{aligned}
 + (2) - (1) - (3) &= + 0 \cdot 291, \\
 + (5) - (3) - (4) &= + 0 \cdot 556, \\
 + (7) - (6) - (8) &= - 0 \cdot 046,
 \end{aligned}$$

and those of 1882-83 are as follows :—

$$\begin{aligned}
 + (16) - (1) - (15) &= + 0 \cdot 068, \\
 + (14) - (13) - (15) &= + 0 \cdot 069, \\
 + (9) - (13) - (10) &= + 0 \cdot 032.
 \end{aligned}$$

The problem before us is to ascertain from these data which arcs are most probably in fault, and to deduce some criterion by which to be guided in selecting those which may with advantage be rejected.

Of the arcs contained in the above groups (1) must of necessity be considered good, for it enters into a previously measured circuit which had, in common with all those observed during that season, closed satisfactorily, and moreover had been completed before any instrumental defects had begun to show themselves. The large errors of the first two circuits must therefore depend on (2), (3), (4) and (5). Now (2) has been measured twice with fairly accordant results, and therefore (3) stands convicted in the first circuit for two reasons. Firstly because of the large error appertaining to that circuit, to which it is probable that (1) and (2) do not materially contribute, and secondly and more convincingly, because it has been remeasured with a result  $0 \cdot 287$  in excess of the first value. The second measurement is more trustworthy than the first, having been executed after the telescope tubes had been strengthened and repaired. As a first step then this first value of (3) must be rejected entirely, and (15) substituted for it; and as the agreement between (2) and (16) is fairly good, the difference being only  $0 \cdot 064$ , we shall be justified in taking the mean, *viz.*,  $16^m 27^s \cdot 958$  as the best at present attainable. The circuit error then reduces to

$$+ (2)^* - (1) - (15) = + 0 \cdot 036.$$

Now proceeding to the quadrilateral contained by (3), (9) (8) and (14) it will be noticed that (8) has been remeasured, and as the two values differ by  $0 \cdot 116$  we may take the mean, *viz.*,  $1^m 30^s \cdot 341$  as the best approximation we can make to the true value for the purposes of the present discussion. Now taking this mean and the second value of (3), *i.e.*, (15) in the diagram, we form all the possible circuit equations within the quadrilateral, mixing together both years' work, (not the

\* This is the mean of (2) and (16) but is written as (2) for convenience.

means of two or more measurements of one arc, be it observed, there being no arcs possessing more than one value, except those already considered). These circuit equations are as follows :—

$$\begin{aligned}
 + (9) - (13) - (10)^* &= - 0.026, \\
 + (14) - (13) - (15) &= + 0.069, \\
 + (5) - (4) - (15) &= + 0.269, \\
 + (9) - (7) - (4) &= + 0.187, \\
 + (7) - (6) - (10)^* &= + 0.012, \\
 + (14) - (6) - (5) &= + 0.025, \\
 + (13) - (6) - (4) &= + 0.225.
 \end{aligned}$$

Here the evidence against (4) is overwhelming: all the other circuits except those which contain this arc close well, and all those including it give abnormally large errors. The introduction of this arc into any final adjustment of the figure would inevitably tend to dislocate it, and would cause the application of large corrections to sound work to force it into accordance with that of inferior accuracy, and it might therefore evidently be rejected without further examination: but as a farther justification for this course, two separate adjustments of the figure are here given under two different conditions, *viz* :—

(A). By retaining all the above arcs.

(B). By rejecting (4) and the equations containing it.

Let  $x_9$ ,  $x_{13}$ , &c., represent corrections to be applied to the arcs (9), (13), &c., so as to reduce the circuit errors throughout the figure to zero. Then the condition (A) gives the following equations to be solved by the method of minimum squares :—

$$\begin{aligned}
 x_9 - x_{13} - x_{10} &= + 0.026, \\
 x_{14} - x_{13} - x_{15} &= - 0.069, \\
 x_5 - x_4 - x_{15} &= - 0.269, \\
 x_9 - x_7 - x_4 &= - 0.187, \\
 x_7 - x_6 - x_{10} &= - 0.012, \\
 x_{14} - x_6 - x_5 &= - 0.025, \\
 x_{13} - x_6 - x_4 &= - 0.225.
 \end{aligned}$$

The last two equations may be omitted from the computation, not being independent ones. The solution, the details of which it is unnecessary to give here, produces the following values :—

$$\begin{aligned}
 x_4 &= + 0.136, & x_7 &= + 0.031, & x_{13} &= - 0.036, \\
 x_5 &= - 0.053, & x_9 &= - 0.021, & x_{14} &= - 0.026, \\
 x_6 &= + 0.052, & x_{10} &= - 0.010, & x_{15} &= + 0.079.
 \end{aligned}$$

The condition (B), in which the equations involving (4) are rejected, gives the following group for solution :—

$$\begin{aligned}
 x_9 - x_{13} - x_{10} &= + 0.026, & x_7 - x_6 - x_{10} &= - 0.012, \\
 x_{14} - x_{13} - x_{15} &= - 0.069, & x_{14} - x_6 - x_5 &= - 0.025,
 \end{aligned}$$

with these results,

$$\begin{aligned}
 x_5 &= - 0.008, & x_7 &= - 0.015, & x_{10} &= - 0.010, & x_{14} &= - 0.026, \\
 x_6 &= + 0.007, & x_9 &= + 0.025, & x_{13} &= + 0.009, & x_{15} &= + 0.034.
 \end{aligned}$$

The weights of all arcs have been taken as unity, an assumption which is very approximately true, and one which at all events cannot vitiate a preliminary discussion of this kind to any appreciable extent. The marked diminution of the corrections under system (B) on the whole, and the large correction which falls to (4) in system (A), seem to be sufficient justification for adopting the former in which (4) is rejected. It will therefore be advisable when the final adjustment of the whole longitude work is taken in hand, that the mean of (2) and (16) should be taken for the true value of Fyzabad-Agra, and the mean of (8) and (10) for that of Jalpaiguri-Calcutta, and also that (3) and (4) should be entirely rejected.

\* This is the mean of (8) and (10) but is written as (10) for convenience.

## 5.

*On the probable Causes of the Errors of Arc-measurements, and on the Nature of the Defects in the Transit Instruments which might produce them.*

When the extreme accuracy with which the exact instant of a star's transit over the wires in the telescopes can be recorded by electricity is considered (the probable error for a single wire being only  $0^{\circ}.045$ ) it appears at first sight rather strange that the measurement of arcs of longitude should be subject to such comparatively large errors as are shown to exist by the formation of the so-called "circuit equations."

These circuit equations are formed by proceeding from any one selected station along measured arcs (generally three in number) and returning to the initial station, when of course the sum of these arcs taken with their proper signs should, if the observations are perfect, equate to zero. The difference from zero is called "circuit error." Now there are at least eighteen possible sources of error in the measurement of an arc of longitude, *viz.* :—

1. Errors in estimating the time of a star passing a wire,
2. Personal equation,
3. Variation in personal equation,
4. Personality in measuring collimation and level,
5. Personality in reading chronograph sheets,
6. Retardation of electric currents,
7. Armature-time in pens and relays,
8. Irregular chronograph rate,
9. Pen equation,
10. Star places,
11. Clock rate,
12. Instability of pillars,
13. Wire intervals,
14. Values of micrometer screws,
15. Collimation,
16. Level,
17. Deviation from meridian,
18. Irregular flexure and instability of adjustments.

Most of these can have little or no effect on the result and may be dismissed at once. The first is utterly insignificant as the probable error owing to this cause is only about  $0^{\circ}.012$  for each star; and each arc depends on the transits of about 200 stars at either station. Personal equation is determined by the usual method of divided transits several times during the season, the probable error of the result on each night being very small. Variation in this equation cannot be entirely guarded against, and is always more or less a source of anxiety. For this there seems to be no remedy, the only palliation of the evil is to determine the equation as often as can conveniently be done, and so to arrange the arcs that each observer is as often at the eastern station as at the western: this precaution has never been lost sight of. Personality in measuring collimation and level has been proved to be rejectaneous by direct measurement, *i.e.*, by both observers using the same telescope and collimators under the same circumstances. Personality in reading off chronograph sheets is guarded against by employing the same person to read off the sheets of a whole arc. Retardation of electric currents, and armature-time in pens and relays are shown in the discussion in the appendix to have a probably inappreciable effect. The influence of irregular chronograph rate is obviated by the method adopted for reading off the sheets. This is so arranged that when the length of the seconds, as graphically recorded on the chronograph sheets, exceeds or falls short of the normal length by a certain fixed quantity, the pen equation (which is the quantity that would be most affected by any such irregularity) is applied graphically before reading off; in other cases the pen equation is applied numerically to the mean of the wires. The arrangement of the groups is such that this equation is alternately positive and negative, and hence any small uncertainty in its amount is cancelled in the mean.

Any effect of erroneous star places is eliminated by using the same stars at both stations; in fact only approximate places are necessary, the sole purpose for which they are required at all being for identification of the stars and for the calculation of constants for correcting for collimation, level and deviation. Clock rate is determined from a great number of stars each night both north and south of the zenith; moreover the rate of each clock is determined independently by both

observers; and as it is only required during the short interval (rarely exceeding 20 minutes and usually much less) of a star passing from the meridian of one station to that of the other, we may consider that the correction applied on this account can only contribute in an inappreciable degree to the errors we are now considering. Instability of pillars would be shown up by fluctuating level corrections, irregular clock rates, great differences between the values of the arc as determined by different stars, and other irregularities of which there is hardly any trace. Wire intervals are determined with such accuracy that any wires might be used indiscriminately; but even if this were not so, the precaution of using the same in both positions of the telescopes, *viz.*, *I. P. E.* and *I. P. W.*, cancels all errors arising from this source. A reference to *Tables I* to *Q* in which an abstract of the measurements of the wire intervals is given, will show the amount of confidence to be placed in them. The same remarks apply to the value of the micrometer screws of the transit telescopes and the south collimators. They are both determined with great care, and the system adopted of placing the cross of the south collimator alternately on the east and west sides of that of the north collimator ensures, in great part at least, cancelment of small errors arising from incorrect micrometer screw values. The causes of our circuit errors then are apparently narrowed down to the three instrumental adjustments—collimation, level and deviation—and want of stability therein: a careful analysis of the observations of transits for longitude as well as of other experiments, shows that we have here at all events a very probable source of error. Let it be remembered that during the process of determining collimation, the telescope is pointed horizontally first towards the south and then towards the north, and that during the leveling by reflection it is pointed towards the nadir. Now although these processes are accurate enough in themselves, we have no means of knowing that the line of collimation remains immovable even during these pointings, much less can we affirm it to keep so when the telescope is pointed to the zenith, near to which most of the observations for longitude are made. It is difficult to imagine an instrument of workmanship so perfect, as not to be subject to some amount of irregular flexure under such circumstances; and what seems really to occur is that in *both* telescopes in *both* positions, *I. P. E.* and *I. P. W.*, owing to some instability or flexure, the seat of which is at present unknown, the sight line after all known corrections are made does not describe the true astronomical meridian; by which term is here meant the great circle passing through the pole and the point where the plumb line produced cuts the celestial sphere. The astronomical meridian will probably, owing to local attraction, not coincide with the true meridian which may be defined as the intersection of the plane passing through the observer's position and the earth's axis with the celestial sphere. The astronomical meridian is in fact the great circle that the sight line of a transit instrument, perfect in all its adjustments and subject only to local attraction, should describe on the celestial sphere. The object of the evidence collected in the following tables is to endeavour to ascertain as far as possible, firstly, the amount of the divergence from the true astronomical meridian in both positions of the pivots in each of the telescopes, and secondly, the cause that produces it.

Now as we at present know nothing about the nature of this divergence, whether owing to dislevelment, faulty collimation or deviation, we may assume it to be the same for all stars observed, of whatever declination they are; and this assumption is not likely to lead us far astray in an investigation of this kind, especially as the stars observed are for the most part within a few degrees of the zenith, as many being north of that point as south. This latter condition also makes it probable that azimuthal deviation from the meridian is little, if at all, concerned in producing these errors, as its effect on north and south stars enters with opposite signs and tends to cancel. Dislevelment and unstable collimation are therefore probably the chief causes.

Let then the symbols  $x_e$  and  $x_w$  represent corrections to be added to times of transit observed by Telescope No. 1 *I. P. E.* and *I. P. W.*, respectively, and  $y_e$  and  $y_w$  the same for Telescope No. 2. Now although the observations ordinarily taken for a single arc of longitude will not enable us to separate  $x_e$  and  $y_e$  from  $x_w$  and  $y_w$ , still we can by analyzing our results obtain a number of fallible equations involving several different combinations of these four unknown quantities, their coefficients being unity in all cases; but as soon as we advance from a single arc to a circuit of three arcs the separation becomes possible. These fallible equations involving the four unknown quantities naturally arrange themselves in four groups. The first is deduced from the difference of clock rates given by the two instruments, the second from the discrepancies in the measurements of single arcs obtained by different pivot combinations, the third from comparison of circuit errors generated by different pivot positions, and the fourth from experiments especially devoted to the purpose, apart from the longitude observations.

As the forms of these equations vary from year to year according to the system employed in changing pivots, the results of each year are taken in hand separately. In the Season 1881-82 one change only was made during each arc, and both telescopes were reversed simultaneously, when half the number of nights had been completed. On the arcs (2), (4), (6) and (8), *vide* diagram on page (22), the pivots were dissimilarly placed, *i.e.*, when Telescope No. 1 was *I. P. E.* Telescope No. 2 was *I. P. W.* and *vice versa*. On the arcs (3), (5) and (7), the pivots were similarly situated. This season consequently furnishes very few equations connecting  $x_e$ ,  $x_w$ ,  $y_e$  and  $y_w$ , as their number depends on the number of pivot changes. This is however of little consequence as the instability of the line of collimation was obviously so great that no trustworthy evidence can be extracted from the figures. In *Table E* 1.  $r_1$ ,  $r_2$ ,  $r_3$ , &c., represent the true clock rate between those two nights of observation which include the simultaneous change of pivots. Now taking the case of one telescope,

(say No. 1) if  $T$  be the true time of transit on the first of the two nights (between which the change of pivots from *I. P. E.* to *I. P. W.* is made) the apparent clock time of transit is  $T - x_e$ . Also if the true clock rate correction, supposed unknown, be  $r$ , the apparent clock time of transit on the second night will be  $T - r - x_w$  (neglecting 24 hours). The difference of these two apparent clock times will be the rate correction as deduced from the observations, whence we have the equation:—

$$\text{Apparent clock rate correction} = T - x_e - T + r + x_w = r - x_e + x_w.$$

Each telescope gives an equation of similar form to this for each clock. Subtracting the equations for Telescope No. 2 from those for Telescope No. 1, the quantities  $r, r_2, r_3$ , &c., (the true clock rates) disappear, and we obtain a value of  $(y_e - y_w) + (x_e - x_w)$  when the pivots are dissimilarly placed, and of  $(y_e - y_w) - (x_e - x_w)$  when similarly placed. The formation of these equations is given in detail in *Table E 1* for Season 1881-82. The first column contains the names of the terminal stations of each arc with the number of the telescope used thereat; the second shows the two dates between which the pivot change was made, and whether it was from E. to W. or W. to E.; the third contains the symbolical apparent clock rate correction for Telescope No. 1, which is the same of course for both clocks; the fourth and fifth give the corresponding numerical values as deduced from the observations; the sixth, seventh, eighth and ninth columns have the same relation to Telescope No. 2 that the second, third, fourth and fifth have to Telescope No. 1; and the tenth and eleventh give the resulting numerical values of  $(y_e - y_w) + (x_e - x_w)$  and  $(y_e - y_w) - (x_e - x_w)$  as explained above.

*Table E 2* gives the formation of the residuals as derived from arc-measurements.

Let  $\Delta L$  represent the true value of any arc. Then if this arc has been deduced by Telescope No. 1 *I. P. E.* at the eastern station, and No. 2 *I. P. E.* at the western station, its computed value will be not  $\Delta L$  but  $\Delta L - y_e + x_e$ . During the Season 1881-82 therefore there will be two equations of this form for each arc, one resulting from the observations before change of pivots, and one from those after. By equating the two proper symbolical expressions for any particular measurements to their corresponding numerical values, and subtracting one from the other,  $\Delta L$  disappears and leaves a numerical value for  $(y_e - y_w) \pm (x_e - x_w)$  as before. In this table the first column is similar to that of *Table E 1*; the second column gives the dates of observation; the third and fourth specify the pivot positions for the two telescopes; the fifth is the symbolical, and the sixth the numerical value of each measurement; the quantities in the seventh and eighth columns are obtained from those in the preceding one by simple subtraction.

*Table E 3* referring to the next Season, 1882-83, is almost exactly similar to *Table E 2*, except that as there are many more pivot changes, it is somewhat more extended. The symbolical equations after the first two nights of each arc, being mere repetitions, are not inserted, and as the pivots were similarly placed throughout, no values of  $(y_e - y_w) + (x_e - x_w)$  can be obtained.

*Table E 4* differs from *Table E 2* in the same way as *Table E 3* differs from *Table E 1*, and calls for no further remark.

*Tables E 5, E 6* and *E 7* are very similar to *Tables E 3* and *E 4*. They only differ slightly in arrangement, owing to the greater number of pivot changes which include both similar and dissimilar positions. These were so arranged that one telescope had its pivots reversed half way through each night's work, and the other between each two nights' work. The former is therefore assumed to give true clock rate from one night to another, whilst the rate given by the other is affected by change of pivot. The practical result of this is valuable as it enables us to obtain  $(y_e - y_w)$  and  $(x_e - x_w)$  separately, as will be seen from an inspection of *Table E 5*. The arcs given in *Tables E 6* and *E 7* were measured with Telescope No 1 at the eastern and western station, respectively, and as the symbolical expressions are different for the two cases it was convenient to keep them in separate tables.

In *Table E 8* the equations dependent on the errors in the circuits are formed. The symbols  $\Delta I_1, \Delta I_2, \Delta I_3$  represent the true values of the three arcs forming the circuit,  $\Delta I_1$  always being the arc subtending the station of middle longitude, and  $\Delta I_2$  and  $\Delta I_3$  those including that station. Hence we have the equation  $\Delta I_1 - \Delta I_2 - \Delta I_3 = 0$ . The first column contains the names of the stations of the three arcs forming the circuit, with the number of the telescope used at each; the second shows the month and year in which the arc was measured; the third and fifth columns give the symbolical values of each measurement before and after every change of pivots; and the fourth and sixth furnish the corresponding numerical values. These numerical values are the means of each pivot position for the whole arc. The algebraic addition of the three lines appertaining to each arc in the fourth and sixth columns, gives the numerical values corresponding to the symbols in the last four columns.

*Table E 9* contains the results of a few experiments that were made during the Season 1883-84 with a view to throwing some further light on the pivot irregularities. Each telescope was tested independently, the principle underlying



the test being as follows :—A certain number of stars were observed on one night *I. P. E.*, and then a few *I. P. W.*; the next night the first group was observed *I. P. W.*, and the second *I. P. E.* The difference of the two clock rates thus obtained gives twice the difference of pivot errors for positions *I. P. E.* and *I. P. W.* There were variations in details, but the same principle prevailed throughout. It is evident that in the particular case given above, if  $r$  be the true rate-correction as before, then the apparent rate-correction for the first group will be  $r - x_e + x_w$ , and for the second  $r - x_w + x_e$ . The difference of the two will be  $2(x_e - x_w)$  which must be equated to the difference of the numerical values. The deduced values of  $(x_e - x_w)$  and of  $(y_e - y_w)$  are given in the last two columns of the table.

*Table E 10* furnishes for each arc a synopsis of all the equations involving the four unknown quantities, collected from the data for the Seasons 1882-83 and 1883-84; and in the last four columns of the table are given the values of  $x_e$ ,  $x_w$ ,  $y_e$  and  $y_w$ , computed from those equations.

In the first eight arcs there are only three equations to each, from which to determine the four unknown quantities, and moreover one of these three is not independent; the number of real equations is therefore only two, but the group is of the following form in every case :—

$$\begin{aligned} y_e - y_w - x_e + x_w &= a, \\ y_e - x_e &= b, \\ y_w - x_w &= c. \end{aligned}$$

Put

$$y_e - x_e = k, \quad \text{and} \quad y_w - x_w = l,$$

then we have the three fallible equations :—

$$\begin{aligned} k - l &= a, \\ k &= b, \\ l &= c. \end{aligned}$$

Let  $v_1$ ,  $v_2$  and  $v_3$  be three unknown quantities such that—

$$\begin{aligned} k - l &= a + v_1, \\ k &= b + v_2, \\ l &= c + v_3, \end{aligned}$$

then this group of equations must be solved with the condition that  $v_1^2 + v_2^2 + v_3^2$  is to be a minimum, i.e.,

$$(k - l - a)^2 + (k - b)^2 + (l - c)^2 \text{ is to be a minimum.}$$

Differentiating first with respect to  $k$  and then with respect to  $l$  :—

$$\begin{aligned} k - l - a + k - b &= 0, \\ -k + l + a + l - c &= 0, \end{aligned}$$

whence

$$\begin{aligned} 2k - l &= a + b, \\ -k + 2l &= c - a, \end{aligned}$$

and

$$\begin{aligned} k &= \frac{a + 2b + c}{3}, \\ l &= -a + \frac{b + 2c}{3}. \end{aligned}$$

Re-introducing the original values of  $k$  and  $l$

$$\begin{aligned} y_e - x_e &= \frac{a + 2b + c}{3}, \\ y_w - x_w &= -a + \frac{b + 2c}{3}, \end{aligned}$$

from which equations we must in the absence of any other conditions assume that

$$\begin{aligned} y_e - x_e &= \frac{a + 2b + c}{6}, \\ y_w - x_w &= \frac{-a + b + 2c}{6}, \end{aligned}$$

by which formulæ the numbers in the last four columns of *Table E 10* for the first eight arcs were obtained.

The equations furnished by the last six arcs are somewhat more complicated. Numerical values of the differences of all the four unknown quantities taken two and two are available. Their form is as follows :—

$$y_c - x_c = b \quad . \quad . \quad . \quad . \quad (I)$$

$$y_w - x_w = c \quad . \quad . \quad . \quad . \quad (II)$$

$$y_c - y_w = d \quad . \quad . \quad . \quad . \quad (III)$$

$$x_c - x_w = e \quad . \quad . \quad . \quad . \quad (IV)$$

$$y_c - x_w = f \quad . \quad . \quad . \quad . \quad (V)$$

$$y_w - x_c = g \quad . \quad . \quad . \quad . \quad (VI)$$

Now it is obvious that these are not all independent equations, for (IV) may be obtained by subtracting (I) from the sum of (II) and (III); (V) is the sum of (II) and (III), and (VI) can be got by subtracting (III) from (I), as far at least as the left hand members are concerned; but as the equations result from fallible measures, the right hand members thus obtained will not be identical with those in (IV), (V) and (VI), and consequently the first step in the solution of the equations is to apply a system of corrections to the right-hand members, which must fulfil two conditions, *viz.*, that all contradiction among the equations shall be removed, and that the sum of the squares of the corrections shall be a minimum. Symbolize these corrections by the first six letters of the Greek alphabet so that

$$y_c - x_c = b + \alpha,$$

$$y_w - x_w = c + \beta,$$

$$y_c - y_w = d + \gamma,$$

$$x_c - x_w = e + \delta,$$

$$y_c - x_w = f + \epsilon,$$

$$y_w - x_c = g + \zeta.$$

Then the two conditions alluded to furnish the following equations :—

$$e + \delta = c + d - b + \beta + \gamma - \alpha,$$

$$f + \epsilon = c + d + \beta + \gamma,$$

$$g + \zeta = b - d + \alpha - \gamma,$$

and

$$\alpha^2 + \beta^2 + \gamma^2 + \delta^2 + \epsilon^2 + \zeta^2 \text{ to be a minimum.}$$

By the ordinary process of minimum squares, the details of which it is unnecessary to give here, these conditions are found to be satisfied by the following values :—

$$\alpha = \frac{1}{4}(-2b + d - e + f + g),$$

$$\beta = \frac{1}{4}(-2c - d + e + f + g),$$

$$\gamma = \frac{1}{4}(-2d + b - c + f - g),$$

$$\delta = \frac{1}{4}(-2e - b + c + f - g),$$

$$\epsilon = \frac{1}{4}(-2f + b + c + d + e),$$

$$\zeta = \frac{1}{4}(-2g + b + c - d - e),$$

and applying these corrections to the original group of equations we have :—

$$y_c - x_c = \frac{1}{4}(2b + d - e + f + g),$$

$$y_w - x_w = \frac{1}{4}(2c - d + e + f + g),$$

$$y_c - y_w = \frac{1}{4}(2d + b - c + f - g),$$

$$x_c - x_w = \frac{1}{4}(2e - b + c + f - g),$$

$$y_c - x_w = \frac{1}{4}(2f + b + c + d + e),$$

$$y_w - x_c = \frac{1}{4}(2g + b + c - d - e),$$

in this group any three equations can be obtained from the remaining three.

Let us take the first, third and fifth, and for the sake of simplicity write the right-hand members as  $B$ ,  $D$  and  $F$  so that

$$y_e - x_e = B,$$

$$y_e - y_w = D,$$

$$y_e - x_w = F,$$

these three must be solved under the condition that the sum of the squares of the corrections  $y_e$ ,  $y_w$ ,  $x_e$  and  $x_w$  is to be a minimum. The following will be found to be the required values :—

$$y_e = \frac{1}{4} (B + D + F),$$

$$x_e = \frac{1}{4} (-3B + D + F),$$

$$x_w = \frac{1}{4} (B + D - 3F),$$

$$y_w = \frac{1}{4} (B - 3D + F),$$

and substituting for  $B$ ,  $D$  and  $F$  their original values we have finally :—

$$y_e = \frac{1}{4} (b + d + f),$$

$$x_e = \frac{1}{4} (-b + e - g),$$

$$x_w = \frac{1}{4} (-c - e - f),$$

$$y_w = \frac{1}{4} (c - d + g),$$

by means of which formulæ the numbers in the last four columns of *Table E 10* for the last six arcs have been obtained.

*Table E 11* shows the values of the arcs after the corrections worked out in the preceding table have been applied to them. It will be noticed how very much the discordances in the measurements depending on the pivot positions are smoothed down, while in some cases there results also a very appreciable change in the final mean value of the arc, amounting in one case to as much as  $+0.079$ .

*Table E 12* shows the effect on the circuit errors by employing the corrected arcs instead of the original values. In every case the error is diminished, and in most instances notably so, the average error being in the former case  $0.050$  and in the latter  $0.033$ .

The above discussion seems to show very clearly that the quantities  $x_e$ ,  $x_w$ ,  $y_e$  and  $y_w$  do really exist, and have a sensibly constant magnitude throughout the whole of the seasons 1882-83 and 1883-84. For the former season the average values are :—

$$x_e = +0.064 \pm 0.016; \quad x_w = -0.074 \pm 0.009; \quad y_e = -0.074 \pm 0.016; \quad y_w = +0.064 \pm 0.009;$$

and for the latter season :—

$$x_e = +0.013 \pm 0.006; \quad x_w = -0.062 \pm 0.005; \quad y_e = -0.097 \pm 0.012; \quad y_w = +0.146 \pm 0.013.$$

The causes of such irregularities as these are very obscure: if  $x_e = -x_w$ , and  $y_e = -y_w$  they might be accounted for in various ways, such as want of truth in the cylindrical figure of the pivots, and flexure of the axis or telescope tube, but the same part of the pivots comes into play in both positions of the telescope, only that that part which is used in intersecting the south collimator when *I. P. E.* is used in intersecting the north collimator when *I. P. W.* and *vice versa*, so that errors from this cause would enter with equal magnitudes and contrary signs according to the pivot position. In leveling and in observing transits near the zenith the pivots change *Ys* when the telescope is reversed but the same parts of them rest on the bearings. Inequality in the sizes of the pivots or in the angle of the *Ys* would have no effect as the process of leveling by reflection from mercury applies to the axis of the pivots and not to their upper surfaces as in leveling with the spirit-level. The quantities  $x_e$ ,  $x_w$ ,  $y_e$  and  $y_w$ , though in reality very small, are yet sufficiently large with exception of the first to be very visible in the field of the telescope, the minimum that can be clearly discerned being about  $.45$  of a second of arc (or  $.03$  of time).

TABLE E1. FORMATION OF RESIDUALS FROM CLOCK RATES, SEASON 1881-82.

Station observed at and Telescope used		By TELESCOPE No. 1				By TELESCOPE No. 2				$(y_e - y_w)$ + $(x_e - x_w)$	$(y_e - y_w)$ - $(x_e - x_w)$
		Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction			Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction				
			Symbolical	E Clock	W Clock		Symbolical	E Clock	W Clock		
(E) Fyzabad	Tel. 1	Nov. 29, <i>I.P.E.</i> to	$r_1 - x_e + x_w$	$+ 9^s.483$	$- 4^s.013$	Nov. 29, <i>I.P.W.</i> to	$r_1 - y_w + y_e$	$+ 8^s.990$	$- 4^s.770$	$- 0^s.493$	$s$
(W) Agra	" 2	Nov. 30, <i>I.P.W.</i>				Nov. 30, <i>I.P.E.</i>				$- 0^s.757$	
(E) Fyzabad	" 1	Dec. 14, <i>I.P.W.</i> to	$r_2 - x_w + x_e$	$+ 23^s.052$	$+ 17^s.259$	Dec. 14, <i>I.P.W.</i> to	$r_2 - y_w + y_e$	$+ 23^s.378$	$+ 17^s.649$		$+ 0^s.326$
(W) Jubbulpore	" 2	Dec. 16, <i>I.P.E.</i>				Dec. 16, <i>I.P.E.</i>					$+ 0^s.390$
(E) Hazaribagh	" 2	Jan. 6, <i>I.P.W.</i> to	$r_3 - x_w + x_e$	$+ 5^s.060$	$+ 11^s.385$	Jan. 6, <i>I.P.E.</i> to	$r_3 - y_e + y_w$	$+ 4^s.820$	$+ 11^s.341$	$+ 0^s.240$	
(W) Fyzabad	" 1	Jan. 7, <i>I.P.E.</i>				Jan. 7, <i>I.P.W.</i>				$+ 0^s.044$	
(E) Hazaribagh	" 2	Jan. 21, <i>I.P.W.</i> to	$r_4 - x_w + x_e$	$+ 15^s.424$	$+ 57^s.626$	Jan. 21, <i>I.P.W.</i> to	$r_4 - y_w + y_e$	$+ 15^s.401$	$+ 57^s.455$		$- 0^s.023$
(W) Jubbulpore	" 1	Jan. 24, <i>I.P.E.</i>				Jan. 24, <i>I.P.E.</i>					$- 0^s.171$
(E) Calcutta	" 1	Feb. 10, <i>I.P.W.</i> to	$r_5 - x_w + x_e$	$+ 43^s.001$	$+ 17^s.013$	Feb. 10, <i>I.P.E.</i> to	$r_5 - y_e + y_w$	$+ 43^s.078$	$+ 17^s.171$	$- 0^s.077$	
(W) Hazaribagh	" 2	Feb. 13, <i>I.P.E.</i>				Feb. 13, <i>I.P.W.</i>				$- 0^s.158$	
(E) Jalpaiguri	" 1	Mar. 2, <i>I.P.W.</i> to	$r_6 - x_w + x_e$	$+ 12^s.088$	$+ 6^s.270$	Mar. 2, <i>I.P.W.</i> to	$r_6 - y_w + y_e$	$+ 12^s.100$	$+ 6^s.129$		$+ 0^s.012$
(W) Hazaribagh	" 2	Mar. 3, <i>I.P.E.</i>				Mar. 3, <i>I.P.E.</i>					$- 0^s.141$

TABLE E2. FORMATION OF RESIDUALS FROM ARC-MEASUREMENTS, SEASON 1881-82.

Station observed at and Telescope used	Date of Observation	Pivot Position		VALUE OF ARC-MEASUREMENT		$(y_e - y_w) + (x_e - x_w)$	$(y_e - y_w) - (x_e - x_w)$
		Telescope No. 1	Telescope No. 2	Symbolical	Numerical		
(E) Fyzabad Tel. 1 (W) Agra " 2	Nov. 25, 28, 29, 30, Dec. 1, 2	<i>I.P.E.</i> <i>I.P.W.</i>	<i>I.P.W.</i> <i>I.P.E.</i>	$\Delta L_1 - y_w + x_e$ $\Delta L_1 - y_e + x_w$	$m \quad s$ 16 27.657 28.182	$s$ $- 0^s.525$	$s$
(E) Fyzabad " 1 (W) Jubbulpore " 2	Dec. 12, 13, 14, 16, 19, 20	<i>I.P.W.</i> <i>I.P.E.</i>	<i>I.P.W.</i> <i>I.P.E.</i>	$\Delta L_2 - y_w + x_w$ $\Delta L_2 - y_e + x_e$	8 44.737 44.533		$+ 0^s.204$
(E) Hazaribagh " 2 (W) Fyzabad " 1	Jan. 4, 5, 6, 7, 9, 10	<i>I.P.W.</i> <i>I.P.E.</i>	<i>I.P.E.</i> <i>I.P.W.</i>	$\Delta L_3 - x_w + y_e$ $\Delta L_3 - x_e + y_w$	12 55.711 55.738	$- 0^s.027$	
(E) Hazaribagh " 2 (W) Jubbulpore " 1	Jan. 19, 20, 21, 24, 25, 26	<i>I.P.W.</i> <i>I.P.E.</i>	<i>I.P.W.</i> <i>I.P.E.</i>	$\Delta L_4 - x_w + y_w$ $\Delta L_4 - x_e + y_e$	21 40.883 40.944		$+ 0^s.061$
(E) Calcutta " 1 (W) Hazaribagh " 2	Feb. 8, 9, 10, 13, 14, 16	<i>I.P.W.</i> <i>I.P.E.</i>	<i>I.P.E.</i> <i>I.P.W.</i>	$\Delta L_5 - y_e + x_w$ $\Delta L_5 - y_w + x_e$	11 56.796 56.648	$- 0^s.148$	
(E) Jalpaiguri " 1 (W) Hazaribagh " 2	Feb. 25, Mar. 1, 2, 3, 4, 5	<i>I.P.W.</i> <i>I.P.E.</i>	<i>I.P.W.</i> <i>I.P.E.</i>	$\Delta L_6 - y_w + x_w$ $\Delta L_6 - y_e + x_e$	13 26.986 27.170		$- 0^s.184$
(E) Jalpaiguri " 1 (W) Calcutta " 2	Mar. 17, 19, 22, April 4, 5, 6	<i>I.P.E.</i> <i>I.P.W.</i>	<i>I.P.W.</i> <i>I.P.E.</i>	$\Delta L_7 - y_w + x_e$ $\Delta L_7 - y_e + x_w$	1 30.196 30.544	$- 0^s.348$	

TABLE E 3. FORMATION OF RESIDUALS FROM CLOCK RATES, SEASON 1882-83.

Station observed at and Telescope used	Date of Observation	Pivot Posi- tions for both Telescopes	By TELESCOPE No. 1			By TELESCOPE No. 2			$(y_e - y_w) - (x_e - x_w)$	
			Clock Rate Correction			Clock Rate Correction			by E Clock	by W Clock
			Symbolical	E Clock	W Clock	Symbolical	E Clock	W Clock		
(E) Jalpaiguri Tel. 2 (W) Fyzabad " 1	Dec. 2	<i>I. P. E.</i>		<i>s</i>	<i>s</i>		<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
	" 4	<i>I. P. W.</i>	$r - x_e + x_w$	+ 1'34	+ 5'72	$r - y_e + y_w$	+ 1'85	+ 6'22	-0'51	-0'50
	" 5	<i>I. P. E.</i>	$r - x_w + x_e$	+ 1'16	+ 3'07	$r - y_w + y_e$	+ 0'86	+ 2'78	-0'30	-0'29
	" 6	<i>I. P. W.</i>		+ 1'40	+ 3'16		+ 1'52	+ 3'32	-0'12	-0'16
	" 7	<i>I. P. E.</i>		+ 1'19	+ 3'13		+ 1'14	+ 3'06	-0'05	-0'07
	" 8	<i>I. P. W.</i>		+ 1'61	+ 3'48		+ 1'66	+ 3'57	-0'05	-0'09
	" 9	<i>I. P. E.</i>		+ 1'20	+ 3'24		+ 1'18	+ 3'12	-0'02	-0'12
	" 11	<i>I. P. W.</i>		+ 2'95	+ 6'91		+ 3'04	+ 6'95	-0'09	-0'04
(E) Jalpaiguri Tel. 2 (W) Calcutta " 1	Dec. 21	<i>I. P. W.</i>								
	" 26	<i>I. P. E.</i>	$r - x_w + x_e$	+ 12'76	+ 10'69	$r - y_w + y_e$	+ 12'16	+ 10'06	-0'60	-0'63
	" 27	<i>I. P. W.</i>	$r - x_e + x_w$	+ 2'73	+ 1'95	$r - y_e + y_w$	+ 3'25	+ 2'58	-0'52	-0'63
	" 28	<i>I. P. E.</i>		+ 3'05	+ 2'47		+ 2'60	+ 1'98	-0'45	-0'49
	" 29	<i>I. P. W.</i>		+ 2'63	+ 2'11		+ 3'04	+ 2'59	-0'41	-0'48
	Jan. 2	<i>I. P. E.</i>		+ 12'90	+ 9'89		+ 12'41	+ 9'34	-0'49	-0'55
(E) Chittagong Tel. 1 (W) Jalpaiguri " 2	Jan. 12	<i>I. P. E.</i>								
	" 13	<i>I. P. W.</i>	$r - x_e + x_w$	+ 1'17	+ 3'78	$r - y_e + y_w$	+ 1'64	+ 4'18	-0'47	-0'40
	" 14	<i>I. P. E.</i>	$r - x_w + x_e$	+ 1'51	+ 4'16	$r - y_w + y_e$	+ 1'18	+ 3'89	-0'33	-0'27
	" 15	<i>I. P. W.</i>		+ 1'54	+ 4'08		+ 1'84	+ 4'25	-0'30	-0'17
	" 17	<i>I. P. E.</i>		+ 3'40	+ 8'32		+ 3'12	+ 8'09	-0'28	-0'23
	" 18	<i>I. P. W.</i>		+ 1'68	+ 4'02		+ 2'12	+ 4'45	-0'44	-0'43
(E) Chittagong Tel. 1 (W) Calcutta " 2	Jan. 23	<i>I. P. W.</i>								
	" 24	<i>I. P. E.</i>	$r - x_w + x_e$	+ 2'00	- 1'31	$r - y_w + y_e$	+ 1'85	- 1'57	-0'15	-0'26
	" 25	<i>I. P. W.</i>	$r - x_e + x_w$	+ 2'20	- 1'44	$r - y_e + y_w$	+ 2'32	- 1'33	-0'12	-0'11
	" 26	<i>I. P. E.</i>		+ 2'54	- 1'01		+ 2'08	- 1'39	-0'46	-0'38
	" 28	<i>I. P. W.</i>		+ 4'63	- 1'81		+ 5'10	- 1'38	-0'47	-0'43
	" 29	<i>I. P. E.</i>		+ 2'79	+ 0'22		+ 2'40	- 0'19	-0'39	-0'41
	" 30	<i>I. P. W.</i>		+ 2'82	+ 0'16		+ 3'06	+ 0'39	-0'24	-0'23
(E) Calcutta Tel. 1 (W) Fyzabad " 2	Feb. 8	<i>I. P. E.</i>								
	" 9	<i>I. P. W.</i>	$r - x_e + x_w$	+ 0'94	...	$r - y_e + y_w$	+ 1'22	- 3'94	-0'28	...
	" 10	<i>I. P. E.</i>	$r - x_w + x_e$	+ 1'12	...	$r - y_w + y_e$	+ 0'90	- 4'10	-0'22	...
	" 11	<i>I. P. W.</i>		+ 0'60	- 3'92		+ 0'84	- 3'81	-0'24	-0'11
	" 13	<i>I. P. E.</i>		+ 0'79	- 6'71		+ 0'60	- 6'76	-0'19	-0'05
	" 14	<i>I. P. W.</i>		+ 0'27	- 3'34		+ 0'45	- 3'21	-0'18	-0'13
(E) Calcutta Tel. 1 (W) Jubbulpore " 2	Feb. 22	<i>I. P. W.</i>								
	" 23	<i>I. P. E.</i>	$r - x_w + x_e$	+ 1'01	+ 4'21	$r - y_w + y_e$	+ 0'80	+ 4'03	-0'21	-0'18
	" 24	<i>I. P. W.</i>	$r - x_e + x_w$	+ 1'12	+ 4'08	$r - y_e + y_w$	+ 1'26	+ 4'25	-0'14	-0'17
	" 28	<i>I. P. E.</i>		+ 5'56	...		+ 5'42	...	-0'14	...
	Mar. 2	<i>I. P. W.</i>		+ 2'33	+ 8'44		+ 2'46	+ 8'69	-0'13	-0'25
	" 3	<i>I. P. E.</i>		+ 1'11	+ 4'33		+ 0'75	+ 4'01	-0'36	-0'32

TABLE E3. FORMATION OF RESIDUALS FROM CLOCK RATES, SEASON 1882-83—(Continued).

Station observed at and Telescope used	Date of Observation	Pivot Posi- tions for both Telescopes	By TELESCOPE NO. 1			By TELESCOPE NO. 2			$(y_e - y_w) - (x_e - x_w)$	
			Clock Rate Correction			Clock Rate Correction			by E Clock	by W Clock
			Symbolical	E Clock	W Clock	Symbolical	E Clock	W Clock		
(E) Fyzabad Tel. 1 (W) Jubbulpore " 2	Mar. 14	<i>I. P. E.</i>		<i>s</i>	<i>s</i>		<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
	" 15	<i>I. P. W.</i>	$r - x_e + x_w$	- 6'07	+ 1'53	$r - y_e + y_w$	- 5'78	+ 1'81	- 0'29	- 0'28
	" 16	<i>I. P. E.</i>	$r - x_w + x_e$	- 5'78	+ 1'80	$r - y_w + y_e$	- 5'98	+ 1'54	- 0'20	- 0'26
	" 17	<i>I. P. W.</i>		- 5'63	+ 2'05		- 5'46	+ 2'22	- 0'17	- 0'17
	" 18	<i>I. P. E.</i>		- 5'41	+ 2'29		- 5'67	+ 2'05	- 0'26	- 0'24
	" 19	<i>I. P. W.</i>		- 6'05	+ 1'35		- 5'68	+ 1'71	- 0'37	- 0'36
	" 20	<i>I. P. E.</i>		- 5'46	+ 2'14		- 5'86	+ 1'72	- 0'40	- 0'42
(E) Fyzabad Tel. 1 (W) Agra " 2	Mar. 28	<i>I. P. E.</i>								
	" 29	<i>I. P. W.</i>	$r - x_e + x_w$	- 5'22	- 6'13	$r - y_e + y_w$	- 5'28	- 6'10	+ 0'06	- 0'03
	" 30	<i>I. P. E.</i>	$r - x_w + x_e$	- 5'35	- 6'23	$r - y_w + y_e$	- 5'39	- 6'42	- 0'04	- 0'19
	" 31	<i>I. P. W.</i>		- 5'54	- 6'16		- 5'29	- 5'89	- 0'25	- 0'27
	April 3	<i>I. P. E.</i>		- 15'84	- 18'56		- 16'22	- 18'91	- 0'38	- 0'35
	" 4	<i>I. P. W.</i>		- 5'40	- 6'66		- 5'09	- 6'26	- 0'31	- 0'40

TABLE E4. FORMATION OF RESIDUALS FROM ARC-MEASUREMENTS, SEASON 1882-83.

Station observed at and Telescope used	Date of Observation	Pivot Positions for both Telescopes	VALUE OF ARC-MEASUREMENT		$(y_e - y_w) - (x_e - x_w)$
			Symbolical	Numerical	
(E) Jalpaiguri Tel. 2 (W) Fyzabad " 1	Dec. 2	<i>I. P. E.</i>	$\Delta L - x_e + y_e$	<sup>m</sup> 26 <sup>s</sup> 22'668	<i>s</i>
	" 4	<i>I. P. W.</i>	for <i>I. P. E.</i>	23'187	- 0'519
	" 5	<i>I. P. E.</i>	and	22'888	- 0'299
	" 6	<i>I. P. W.</i>	$\Delta L - x_w + y_w$	23'043	- 0'155
	" 7	<i>I. P. E.</i>	for <i>I. P. W.</i>	22'968	- 0'075
	" 8	<i>I. P. W.</i>		23'036	- 0'068
	" 9	<i>I. P. E.</i>		22'931	- 0'105
	" 11	<i>I. P. W.</i>		23'026	- 0'095
(E) Jalpaiguri Tel. 2 (W) Calcutta " 1	Dec. 21	<i>I. P. W.</i>	$\Delta L - x_e + y_e$	1 30'610	- 0'653
	" 26	<i>I. P. E.</i>	for <i>I. P. E.</i>	29'957	- 0'606
	" 27	<i>I. P. W.</i>	and	30'563	- 0'508
	" 28	<i>I. P. E.</i>	$\Delta L - x_w + y_w$	30'055	- 0'464
	" 29	<i>I. P. W.</i>	for <i>I. P. W.</i>	30'519	- 0'524
	Jan. 2	<i>I. P. E.</i>		29'995	

TABLE E4. FORMATION OF RESIDUALS FROM ARC-MEASUREMENTS, SEASON 1882-83—(Continued).

Station observed at and Telescope used	Date of Observation	Pivot Positions for both Telescopes	VALUE OF ARC-MEASUREMENT		$(y_e - y_w)$ — $(x_e - x_w)$	
			Symbolical	Numerical		
(E) Chittagong (W) Jalpaiguri	Tel. 1	Jan. 12	<i>I. P. E.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} m & s \\ 12 & 25'095 \end{matrix}$	$s$
	" 2	" 13	<i>I. P. W.</i>	for <i>I. P. E.</i>	24'636	— 0'459
		" 14	<i>I. P. E.</i>	and	24'948	— 0'312
		" 15	<i>I. P. W.</i>	$\Delta L - y_w + x_w$	24'714	— 0'234
		" 17	<i>I. P. E.</i>	for <i>I. P. W.</i>	24'993	— 0'279
		" 18	<i>I. P. W.</i>		24'511	— 0'482
(E) Chittagong (W) Calcutta	Tel. 1	Jan. 23	<i>I. P. W.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} 13 & 54'901 \end{matrix}$	— 0'200
	" 2	" 24	<i>I. P. E.</i>	for <i>I. P. E.</i>	55'101	— 0'141
		" 25	<i>I. P. W.</i>	and	54'960	— 0'410
		" 26	<i>I. P. E.</i>	$\Delta L - y_w + x_w$	55'370	— 0'437
		" 28	<i>I. P. W.</i>	for <i>I. P. W.</i>	54'933	— 0'418
		" 29	<i>I. P. E.</i>		55'351	— 0'239
		" 30	<i>I. P. W.</i>		55'112	
(E) Calcutta (W) Fyzabad	Tel. 1	Feb. 8	<i>I. P. E.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} 24 & 52'836 \end{matrix}$	— 0'284
	" 2	" 9	<i>I. P. W.</i>	for <i>I. P. E.</i>	52'552	— 0'221
		" 10	<i>I. P. E.</i>	and	52'773	— 0'206
		" 11	<i>I. P. W.</i>	$\Delta L - y_w + x_w$	52'567	— 0'148
		" 13	<i>I. P. E.</i>	for <i>I. P. W.</i>	52'715	— 0'176
		" 14	<i>I. P. W.</i>		52'539	
(E) Calcutta (W) Jubbulpore	Tel. 1	Feb. 22	<i>I. P. W.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} 33 & 37'490 \end{matrix}$	— 0'232
	" 2	" 23	<i>I. P. E.</i>	for <i>I. P. E.</i>	37'722	— 0'173
		" 24	<i>I. P. W.</i>	and	37'549	— 0'213
		" 28	<i>I. P. E.</i>	$\Delta L - y_w + x_w$	37'762	— 0'199
		Mar. 2	<i>I. P. W.</i>	for <i>I. P. W.</i>	37'563	— 0'320
		" 3	<i>I. P. E.</i>		37'883	
(E) Fyzabad (W) Jubbulpore	Tel. 1	Mar. 14	<i>I. P. E.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} 8 & 45'058 \end{matrix}$	— 0'291
	" 2	" 15	<i>I. P. W.</i>	for <i>I. P. E.</i>	44'767	— 0'238
		" 16	<i>I. P. E.</i>	and	45'005	— 0'151
		" 17	<i>I. P. W.</i>	$\Delta L - y_w + x_w$	44'854	— 0'268
		" 18	<i>I. P. E.</i>	for <i>I. P. W.</i>	45'122	— 0'400
		" 19	<i>I. P. W.</i>		44'722	— 0'404
		" 20	<i>I. P. E.</i>		45'126	
(E) Fyzabad (W) Agra	Tel. 1	Mar. 28	<i>I. P. E.</i>	$\Delta L - y_e + x_e$	$\begin{matrix} 16 & 27'989 \end{matrix}$	— 0'030
	" 2	" 29	<i>I. P. W.</i>	for <i>I. P. E.</i>	27'959	— 0'144
		" 30	<i>I. P. E.</i>	and	28'103	— 0'272
		" 31	<i>I. P. W.</i>	$\Delta L - y_w + x_w$	27'831	— 0'386
		April 3	<i>I. P. E.</i>	for <i>I. P. W.</i>	28'217	— 0'375
		" 4	<i>I. P. W.</i>		27'842	

TABLE E5. FORMATION OF RESIDUALS FROM CLOCK RATES, SEASON 1883-84.

Station observed at and Telescope used	BY TELESCOPE NO. 1					BY TELESCOPE NO. 2					$y_e - y_w$		$x_e - x_w$	
	Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction			Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction			E Clock	W Clock	E Clock	W Clock	E Clock	W Clock
		Symbolical	E Clock	W Clock		Symbolical	E Clock	W Clock						
(E) Akayab Tel. 1 (W) Calcutta Tel. 2	Dec. 8, I.P.W. Dec. 9, I.P.W.	$r-x_w+x_w$	$-0^{\circ}24$	$-1^{\circ}09$	Dec. 8, I.P.E. Dec. 9, I.P.W.	$r-y_e+y_w$	$+0^{\circ}08$	$-0^{\circ}76$	$-0^{\circ}32$	$-0^{\circ}33$			$s$	$s$
	" 9, I.P.W. " 10, I.P.E.	$r-x_w+x_e$	$-0^{\circ}31$	$-0^{\circ}77$	" 9, I.P.W. " 10, I.P.W.	$r-y_w+y_w$	$-0^{\circ}35$	$-0^{\circ}92$					$+0^{\circ}04$	$+0^{\circ}15$
	" 10, I.P.E. " 11, I.P.E.	$r-x_e+x_e$	$-0^{\circ}29$	$-0^{\circ}25$	" 10, I.P.W. " 11, I.P.E.	$r-y_w+y_e$	$-0^{\circ}66$	$-0^{\circ}64$	$-0^{\circ}37$	$-0^{\circ}39$				
	" 11, I.P.E. " 12, I.P.W.	$r-x_e+x_w$	$-0^{\circ}44$	$-0^{\circ}09$	" 11, I.P.E. " 12, I.P.E.	$r-y_e+y_e$	$-0^{\circ}39$	$+0^{\circ}11$					$+0^{\circ}05$	$+0^{\circ}20$
	" 12, I.P.W. " 13, I.P.W.	$r-x_w+x_w$	$-0^{\circ}25$	$+0^{\circ}23$	" 12, I.P.E. " 13, I.P.W.	$r-y_e+y_w$	$+0^{\circ}12$	$+0^{\circ}56$	$-0^{\circ}37$	$-0^{\circ}33$				
	" 13, I.P.W. " 14, I.P.E.	$r-x_w+x_e$	$+0^{\circ}10$	$+0^{\circ}35$	" 13, I.P.W. " 14, I.P.W.	$r-y_w+y_w$	$-0^{\circ}20$	$+0^{\circ}06$					$+0^{\circ}30$	$+0^{\circ}29$
(E) Akayab Tel. 1 (W) Chittagong Tel. 2	Dec. 26, I.P.E. Dec. 27, I.P.W.	$r-x_e+x_w$	$+0^{\circ}65$	$-8^{\circ}81$	Dec. 26, I.P.E. Dec. 27, I.P.E.	$r-y_e+y_e$	$+0^{\circ}78$	$-8^{\circ}64$					$+0^{\circ}13$	$+0^{\circ}17$
	" 27, I.P.W. " 28, I.P.W.	$r-x_w+x_w$	$+0^{\circ}68$	$-9^{\circ}03$	" 27, I.P.E. " 28, I.P.W.	$r-y_e+y_w$	$+0^{\circ}96$	$-8^{\circ}72$	$-0^{\circ}28$	$-0^{\circ}31$				
	" 28, I.P.W. " 29, I.P.E.	$r-x_w+x_e$	$+0^{\circ}76$	$-8^{\circ}94$	" 28, I.P.W. " 29, I.P.W.	$r-y_w+y_w$	$+0^{\circ}79$	$-8^{\circ}98$					$-0^{\circ}03$	$+0^{\circ}04$
	" 29, I.P.E. " 30, I.P.E.	$r-x_e+x_e$	$+0^{\circ}76$	$-8^{\circ}91$	" 29, I.P.W. " 30, I.P.E.	$r-y_w+y_e$	$+0^{\circ}39$	$-9^{\circ}21$	$-0^{\circ}37$	$-0^{\circ}30$				
	" 30, I.P.E. Jan. 2, I.P.W.	$r-x_e+x_w$	$+1^{\circ}95$	$-28^{\circ}35$	" 30, I.P.E. Jan. 2, I.P.E.	$r-y_e+y_e$	$+2^{\circ}01$	$-28^{\circ}29$					$+0^{\circ}06$	$+0^{\circ}06$
	Jan. 2, I.P.W. " 3, I.P.W.	$r-x_w+x_w$	$+0^{\circ}76$	$-9^{\circ}24$	Jan. 2, I.P.E. " 3, I.P.W.	$r-y_e+y_w$	$+1^{\circ}13$	$-8^{\circ}88$	$-0^{\circ}37$	$-0^{\circ}36$				
" 3, I.P.W. " 4, I.P.E.	$r-x_w+x_e$	$+0^{\circ}94$	$-8^{\circ}93$	" 3, I.P.W. " 4, I.P.W.	$r-y_w+y_w$	$+0^{\circ}84$	$-9^{\circ}03$					$+0^{\circ}10$	$+0^{\circ}10$	
(E) Prome Tel. 1 (W) Chittagong Tel. 2	Jan. 21, I.P.W. Jan. 22, I.P.E.	$r-x_w+x_e$	$+2^{\circ}15$	$+0^{\circ}93$	Jan. 21, I.P.W. Jan. 22, I.P.E.	$r-y_w+y_e$	$+1^{\circ}77$	$+0^{\circ}60$	$-0^{\circ}26$	$-0^{\circ}29$	$+0^{\circ}13$	$+0^{\circ}04$		
	" 21, I.P.E. " 22, I.P.W.	$r-x_e+x_w$	$+1^{\circ}90$	$+0^{\circ}85$	" 22, I.P.E. " 23, I.P.W.	$r-y_e+y_w$	$+2^{\circ}21$	$+1^{\circ}28$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 22, I.P.E. " 23, I.P.W.	$r-x_e+x_w$	$+1^{\circ}98$	$+1^{\circ}08$	" 22, I.P.E. " 23, I.P.W.	$r-y_e+y_w$	$+2^{\circ}21$	$+1^{\circ}28$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 22, I.P.W. " 23, I.P.E.	$r-x_w+x_e$	$+2^{\circ}04$	$+1^{\circ}08$	" 23, I.P.W. " 24, I.P.E.	$r-y_w+y_e$	$+2^{\circ}07$	$+0^{\circ}99$	$-0^{\circ}19$	$-0^{\circ}21$	$+0^{\circ}02$	$+0^{\circ}06$		
	" 23, I.P.E. " 24, I.P.W.	$r-x_e+x_w$	$+2^{\circ}24$	$+1^{\circ}14$	" 24, I.P.E. " 25, I.P.W.	$r-y_e+y_w$	$+2^{\circ}53$	$+1^{\circ}23$	$-0^{\circ}25$	$-0^{\circ}18$	$-0^{\circ}01$	$+0^{\circ}01$		
	" 24, I.P.E. " 25, I.P.W.	$r-x_e+x_w$	$+2^{\circ}28$	$+1^{\circ}04$	" 25, I.P.W. " 26, I.P.E.	$r-y_w+y_e$	$+2^{\circ}09$	$+0^{\circ}62$	$-0^{\circ}23$	$-0^{\circ}19$	$+0^{\circ}09$	$+0^{\circ}12$		
	" 24, I.P.W. " 25, I.P.E.	$r-x_w+x_e$	$+2^{\circ}27$	$+1^{\circ}06$	" 26, I.P.E. " 27, I.P.W.	$r-y_e+y_w$	$+2^{\circ}21$	$+1^{\circ}28$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 25, I.P.W. " 26, I.P.E.	$r-x_w+x_e$	$+2^{\circ}41$	$+0^{\circ}93$	" 27, I.P.W. " 28, I.P.E.	$r-y_w+y_e$	$+2^{\circ}07$	$+0^{\circ}99$	$-0^{\circ}19$	$-0^{\circ}21$	$+0^{\circ}02$	$+0^{\circ}06$		
	" 25, I.P.E. " 26, I.P.W.	$r-x_e+x_w$	$+2^{\circ}23$	$+0^{\circ}69$	" 28, I.P.E. " 29, I.P.W.	$r-y_e+y_w$	$+2^{\circ}21$	$+1^{\circ}28$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 26, I.P.E. " 29, I.P.W.	$r-x_e+x_w$	$+7^{\circ}52$	$+3^{\circ}01$	" 29, I.P.E. " 30, I.P.E.	$r-x_w+x_e$	$+7^{\circ}85$	$+3^{\circ}40$					$+0^{\circ}17$	$+0^{\circ}20$
	" 26, I.P.W. " 29, I.P.E.	$r-x_w+x_e$	$+7^{\circ}85$	$+3^{\circ}40$	" 30, I.P.E. " 31, I.P.W.	$r-y_w+y_e$	$+2^{\circ}12$	$+0^{\circ}93$	$-0^{\circ}24$	$-0^{\circ}28$	$+0^{\circ}15$	$+0^{\circ}15$		
	" 29, I.P.W. " 30, I.P.E.	$r-x_w+x_e$	$+2^{\circ}51$	$+1^{\circ}35$	" 31, I.P.W. " 1, I.P.E.	$r-y_e+y_w$	$+3^{\circ}01$	$+6^{\circ}02$	$-0^{\circ}27$	$-0^{\circ}26$	$+0^{\circ}05$	$+0^{\circ}06$		
" 29, I.P.E. " 30, I.P.W.	$r-x_e+x_w$	$+2^{\circ}21$	$+1^{\circ}06$	" 1, I.P.E. " 2, I.P.W.	$r-y_e+y_w$	$+3^{\circ}01$	$+6^{\circ}02$	$-0^{\circ}27$	$-0^{\circ}26$	$+0^{\circ}05$	$+0^{\circ}06$			
(E) Prome Tel. 1 (W) Akayab Tel. 2	Feb. 8, I.P.E. Feb. 9, I.P.W.	$r-x_e+x_w$	$+2^{\circ}69$	$+6^{\circ}60$	Feb. 8, I.P.E. Feb. 9, I.P.W.	$r-y_e+y_w$	$+3^{\circ}01$	$+6^{\circ}02$	$-0^{\circ}27$	$-0^{\circ}26$	$+0^{\circ}05$	$+0^{\circ}06$		
	" 8, I.P.W. " 9, I.P.E.	$r-x_w+x_e$	$+2^{\circ}79$	$+6^{\circ}71$	" 9, I.P.W. " 10, I.P.E.	$r-y_w+y_e$	$+7^{\circ}50$	$+20^{\circ}91$	$-0^{\circ}15$	$-0^{\circ}15$	$+0^{\circ}18$	$+0^{\circ}10$		
	" 9, I.P.W. " 12, I.P.E.	$r-x_w+x_e$	$+7^{\circ}83$	$+21^{\circ}16$	" 10, I.P.W. " 13, I.P.W.	$r-y_e+y_w$	$+3^{\circ}04$	$+8^{\circ}42$	$-0^{\circ}08$	$-0^{\circ}17$	$+0^{\circ}15$	$+0^{\circ}07$		
	" 9, I.P.E. " 12, I.P.W.	$r-x_e+x_w$	$+7^{\circ}47$	$+20^{\circ}96$	" 13, I.P.W. " 16, I.P.W.	$r-y_w+y_w$	$+0^{\circ}20$	$+0^{\circ}20$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 12, I.P.E. " 13, I.P.W.	$r-x_e+x_w$	$+2^{\circ}81$	$+8^{\circ}18$	" 16, I.P.W. " 19, I.P.W.	$r-y_w+y_w$	$+0^{\circ}20$	$+0^{\circ}20$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		
	" 12, I.P.W. " 13, I.P.E.	$r-x_w+x_e$	$+3^{\circ}10$	$+8^{\circ}31$	" 19, I.P.W. " 22, I.P.W.	$r-y_w+y_w$	$+0^{\circ}20$	$+0^{\circ}20$	$-0^{\circ}20$	$-0^{\circ}20$	$+0^{\circ}03$	$0^{\circ}00$		



TABLE E5. FORMATION OF RESIDUALS FROM CLOCK RATES, SEASON 1883-84—(Continued).

Station observed at and Telescope used	BY TELESCOPE NO. 1					BY TELESCOPE NO. 2					$y_e - y_w$		$x_e - x_w$	
	Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction				Dates from which Rate is obtained, and Pivot Position	Clock Rate Correction				E Clock	W Clock	E Clock	W Clock
		Symbolical	E Clock	W Clock			Symbolical	E Clock	W Clock					
(E) Moulmein Tel. 2 (W) Prome Tel. 1	Mar. 8, I.P.W. Mar. 9, I.P.W.	$r - x_w + x_w$	$+ 10.66$	$+ 2.57$		Mar. 8, I.P.E. Mar. 9, I.P.W.	$r - y_e + y_w$	$+ 10.82$	$+ 2.59$		$- 0.16$	$- 0.02$		
	„ 9, I.P.W. „ 10, I.P.E.	$r - x_w + x_e$	$+ 11.29$	$+ 2.46$		„ 9, I.P.W. „ 10, I.P.W.	$r - y_w + y_w$	$+ 11.10$	$+ 2.37$				$+ 0.19$	$+ 0.09$
	„ 10, I.P.E. „ 11, I.P.W.	$r - x_e + x_w$	$+ 11.52$	$+ 2.07$		„ 10, I.P.W. „ 11, I.P.E.	$r - y_w + y_e$	$+ 11.50$	$+ 2.06$		$- 0.11$	$- 0.13$	$+ 0.09$	$+ 0.12$
	„ 11, I.P.W. „ 12, I.P.E.	$r - x_w + x_e$	$+ 11.72$	$+ 1.96$		„ 11, I.P.E. „ 12, I.P.W.	$r - y_e + y_w$	$+ 11.86$	$+ 2.05$		$- 0.14$	$- 0.13$	$- 0.01$	$+ 0.04$
	„ 12, I.P.E. „ 13, I.P.W.	$r - x_e + x_w$	$+ 12.08$	$+ 1.84$		„ 12, I.P.W. „ 13, I.P.E.	$r - y_w + y_e$	$+ 11.86$	$+ 1.70$		$- 0.12$	$- 0.06$	$- 0.10$	$- 0.08$
	„ 13, I.P.W. „ 14, I.P.E.	$r - x_w + x_e$	$+ 12.34$	$+ 1.85$		„ 13, I.P.E. „ 14, I.P.W.	$r - y_e + y_w$	$+ 12.48$	$+ 1.96$		$- 0.03$	$- 0.02$	$- 0.12$	$- 0.09$
	„ 14, I.P.E. „ 15, I.P.W.	$r - x_e + x_w$	$+ 12.54$	$+ 1.64$		„ 14, I.P.W. „ 15, I.P.E.	$r - y_w + y_e$	$+ 12.49$	$+ 1.63$		$- 0.05$	$- 0.09$	$0.00$	$+ 0.08$
						„ 14, I.P.E. „ 15, I.P.W.	$r - y_e + y_w$	$+ 12.59$	$+ 1.80$					
(E) Moulmein Tel. 2 (W) Akayab Tel. 1	Mar. 26, I.P.E. Mar. 27, I.P.W.	$r - x_e + x_w$	$- 2.22$	$+ 0.81$		Mar. 26, I.P.E. Mar. 27, I.P.W.	$r - y_e + y_w$	$- 2.09$	$+ 0.88$			$- 0.14$		$- 0.06$
	„ 27, I.P.W. „ 28, I.P.E.	$r - x_w + x_e$	$- 2.36$	$+ 0.89$		„ 26, I.P.W. „ 27, I.P.E.	$r - y_w + y_e$		$+ 0.61$					
	„ 28, I.P.E. „ 29, I.P.W.	$r - x_e + x_w$	$- 2.66$	$+ 0.73$		„ 27, I.P.W. „ 28, I.P.E.	$r - y_w + y_e$	$- 2.37$	$+ 0.88$			$+ 0.08$		$+ 0.09$
	„ 29, I.P.W. „ 30, I.P.E.	$r - x_w + x_e$	$- 2.24$	$+ 0.86$		„ 27, I.P.E. „ 28, I.P.W.	$r - y_e + y_w$		$+ 0.72$					
	„ 30, I.P.E. „ 31, I.P.W.	$r - x_e + x_w$	$- 1.66$	$+ 0.82$		„ 28, I.P.E. „ 29, I.P.W.	$r - y_e + y_w$	$- 2.65$	$+ 0.78$		$+ 0.09$			$+ 0.14$
	„ 31, I.P.W. Apr. 1, I.P.E.	$r - x_w + x_e$	$- 1.73$	$+ 0.87$		„ 28, I.P.W. „ 29, I.P.E.	$r - y_w + y_e$		$+ 0.95$					
						„ 29, I.P.W. „ 30, I.P.E.	$r - y_w + y_e$	$- 2.26$	$+ 0.75$		$- 0.03$	$- 0.04$	$- 0.01$	$+ 0.07$
						„ 29, I.P.E. „ 30, I.P.W.	$r - y_e + y_w$	$- 2.20$	$+ 0.83$					
						„ 30, I.P.E. „ 31, I.P.W.	$r - y_e + y_w$	$- 1.67$	$+ 0.91$		$- 0.04$	$- 0.08$	$- 0.05$	$+ 0.01$
						„ 30, I.P.W. „ 31, I.P.E.	$r - y_w + y_e$	$- 1.74$	$+ 0.75$					
						„ 31, I.P.W. Apr. 1, I.P.E.	$r - y_w + y_e$	$- 1.92$	$+ 0.70$		$- 0.09$	$- 0.09$	$+ 0.10$	$+ 0.08$
						„ 31, I.P.E. „ 1, I.P.W.	$r - y_e + y_w$	$- 1.74$	$+ 0.88$					

TABLE E 6. FORMATION OF RESIDUALS FROM ARC-MEASUREMENTS, SEASON 1883-84. FIRST FOUR ARCS.

Station observed at and Telescope used	Date of Observation	PIVOT POSITION		VALUE OF ARC-MEASUREMENT				$y_e - y_w$	$x_e - x_w$
		Tel. No. 1	Tel. No. 2	$\Delta L - y_e + x_e$	$\Delta L - y_w + x_w$	$\Delta L - y_e + x_w$	$\Delta L - y_w + x_e$		
(E) Akyab (W) Calcutta	Nov. 27	<i>I. P. E.</i>	<i>I. P. E.</i>	<i>m s</i> 18 9'57.2	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>s</i>	<i>s</i>
	Dec. 8	<i>I. P. W.</i>	<i>I. P. E.</i>			18 9'43.0			
	" 9	<i>I. P. W.</i>	<i>I. P. W.</i>		18 9'11.0				
	" 10	<i>I. P. E.</i>	<i>I. P. W.</i>				18 9'19.0	- 0'27.3	+ 0'13.5
	" 11	<i>I. P. E.</i>	<i>I. P. E.</i>	18 9'56.8				- 0'32.4	+ 0'18.6
	" 12	<i>I. P. W.</i>	<i>I. P. E.</i>			18 9'44.1			
	" 13	<i>I. P. W.</i>	<i>I. P. W.</i>		18 9'11.1				
	" 14	<i>I. P. E.</i>	<i>I. P. W.</i>				18 9'40.3		
Means				18 9'57.0	18 9'11.1	18 9'43.5	18 9'29.7	- 0'29.9	+ 0'16.1
(E) Akyab (W) Chittagong	Dec. 26	<i>I. P. E.</i>	<i>I. P. E.</i>	4 14'47.8					
	" 27	<i>I. P. W.</i>	<i>I. P. E.</i>			4 14'32.9			
	" 28	<i>I. P. W.</i>	<i>I. P. W.</i>		4 14'03.3				
	" 29	<i>I. P. E.</i>	<i>I. P. W.</i>				4 14'03.7	- 0'39.6	+ 0'11.5
	" 30	<i>I. P. E.</i>	<i>I. P. E.</i>	4 14'37.8				- 0'33.1	+ 0'05.0
	Jan. 2	<i>I. P. W.</i>	<i>I. P. E.</i>			4 14'29.7			
	" 3	<i>I. P. W.</i>	<i>I. P. W.</i>		4 13'92.8				
	" 4	<i>I. P. E.</i>	<i>I. P. W.</i>				4 14'02.7		
Means				4 14'42.8	4 13'98.1	4 14'31.3	4 14'03.2	- 0'36.4	+ 0'08.3
(E) Promé (W) Chittagong	Jan. 21	<i>I. P. W.</i>	<i>I. P. W.</i>		13 30'26.7				
	" 21	<i>I. P. E.</i>	<i>I. P. W.</i>			13 30'55.8			
	" 22	<i>I. P. E.</i>	<i>I. P. E.</i>	13 30'67.4			13 30'40.2		
	" 22	<i>I. P. W.</i>	<i>I. P. E.</i>		13 30'43.8				
	" 23	<i>I. P. W.</i>	<i>I. P. W.</i>			13 30'55.0			
	" 23	<i>I. P. E.</i>	<i>I. P. W.</i>	13 30'67.6					
	" 24	<i>I. P. E.</i>	<i>I. P. E.</i>				13 30'39.7	- 0'31.0	+ 0'16.7
	" 24	<i>I. P. W.</i>	<i>I. P. E.</i>					- 0'16.2	+ 0'01.9
	" 25	<i>I. P. W.</i>	<i>I. P. W.</i>		13 30'45.2				
	" 25	<i>I. P. E.</i>	<i>I. P. W.</i>			13 30'46.8			
	" 26	<i>I. P. E.</i>	<i>I. P. E.</i>	13 30'74.4			13 30'34.1		
	" 26	<i>I. P. W.</i>	<i>I. P. E.</i>						
	" 29	<i>I. P. W.</i>	<i>I. P. W.</i>		13 30'32.0				
	" 29	<i>I. P. E.</i>	<i>I. P. W.</i>			13 30'54.7			
	" 30	<i>I. P. E.</i>	<i>I. P. E.</i>	13 30'69.8			13 30'41.2		
	" 30	<i>I. P. W.</i>	<i>I. P. E.</i>						
Means				13 30'69.8	13 30'36.9	13 30'53.1	13 30'38.8	- 0'23.6	+ 0'09.3
(E) Promé (W) Akyab	Feb. 8	<i>I. P. E.</i>	<i>I. P. E.</i>	9 16'34.6					
	" 8	<i>I. P. W.</i>	<i>I. P. E.</i>			9 16'41.3			
	" 9	<i>I. P. W.</i>	<i>I. P. W.</i>		9 16'03.7				
	" 9	<i>I. P. E.</i>	<i>I. P. W.</i>				9 16'19.5	- 0'14.9	+ 0'05.4
	" 12	<i>I. P. E.</i>	<i>I. P. E.</i>	9 16'35.8				- 0'23.4	+ 0'13.9
	" 12	<i>I. P. W.</i>	<i>I. P. E.</i>			9 16'18.2			
	" 13	<i>I. P. W.</i>	<i>I. P. W.</i>		9 16'09.0				
	" 13	<i>I. P. E.</i>	<i>I. P. W.</i>				9 16'21.1		
Means				9 16'35.2	9 16'06.4	9 16'29.8	9 16'20.3	- 0'19.2	+ 0'09.7

TABLE E7. FORMATION OF RESIDUALS FROM ARC-MEASUREMENTS, SEASON 1883-84. LAST TWO ARCS.

Station observed at and Telescope used	Date of Observation	PIVOT POSITION		VALUE OF ARC-MEASUREMENT				$y_e - y_w$	$x_e - x_w$
		Tel. No. 1	Tel. No. 2	$\Delta L - x_e + y_e$	$\Delta L - x_w + y_w$	$\Delta L - x_e + y_w$	$\Delta L - x_w + y_e$		
(E) Moulmein (W) Akyub	Mar. 26	I. P. E.	I. P. E.	m s 18 54'901	m s	m s	m s	s	s
	" 26	I. P. W.	I. P. E.				18 54'915		
	" 27	I. P. W.	I. P. W.		18 54'990				
	" 27	I. P. E.	I. P. W.			18 54'914			
	" 28	I. P. E.	I. P. E.	18 54'814					
	" 28	I. P. W.	I. P. E.				18 54'946		
	" 29	I. P. W.	I. P. W.		18 55'045			- 0'042	+ 0'042
	" 29	I. P. E.	I. P. W.			18 54'979		- 0'093	+ 0'093
	" 30	I. P. E.	I. P. E.	18 54'966					
	" 30	I. P. W.	I. P. E.				18 54'914		
	" 31	I. P. W.	I. P. W.		18 55'019				
	" 31	I. P. E.	I. P. W.			18 54'887			
	April 1	I. P. E.	I. P. E.	18 54'849					
	" 1	I. P. W.	I. P. E.						
Means				18 54'883	18 55'018	18 54'927	18 54'925	- 0'068	+ 0'068
(E) Moulmein (W) Promo	Mar. 8	I. P. E.	I. P. W.				9 38'677		
	" 8	I. P. E.	I. P. W.						
	" 9	I. P. W.	I. P. W.		9 38'771				
	" 9	I. P. W.	I. P. W.						
	" 10	I. P. W.	I. P. E.				9 38'631		
	" 10	I. P. E.	I. P. E.	9 38'541					
	" 11	I. P. E.	I. P. W.			9 38'637			
	" 11	I. P. W.	I. P. W.		9 38'754			- 0'079	+ 0'025
	" 12	I. P. W.	I. P. E.				9 38'575	- 0'095	+ 0'041
	" 12	I. P. E.	I. P. E.	9 38'601					
	" 13	I. P. E.	I. P. W.			9 38'739			
	" 13	I. P. W.	I. P. W.		9 38'586				
	" 14	I. P. W.	I. P. E.				9 38'653		
	" 14	I. P. E.	I. P. E.	9 38'685					
	" 15	I. P. E.	I. P. W.			9 38'688			
	" 15	I. P. W.	I. P. W.		9 38'805				
Means				9 38'609	9 38'729	9 38'688	9 38'634	- 0'087	+ 0'033

TABLE E8. FORMATION OF RESIDUALS FROM CIRCUITS, SEASONS 1881-82, 1882-83 AND 1883-84.

Name of Arc and Number of Telescope used at each Station				Season of Measurement	VALUE OF ARC-MEASUREMENT				$y_1 - x_1$	$y_w - x_w$	$y_1 - x_w$	$y_w - x_1$
					Symbolical	E Clock	Symbolical	W Clock				
Fyzabad	Tel. 1,	Agra	Tel. 2	1881-82	$\Delta I_1 - y_w + x_e$	$m \quad s$ 16 27' 657	$\Delta I_1 - y_e + x_w$	$m \quad s$ 16 28' 182	$s$	$s$	$s$ -0' 287	$s$ -0' 116
Fyzabad	" 1,	Jubbulpore	" 2	"	$-\Delta I_2 + y_1 - x_e$	- 8 44' 533	$-\Delta I_2 + y_w - x_w$	- 8 44' 737				
Jubbulpore	" 2,	Agra	" 1	1880-81	$-\Delta I_3 + x_e - y_e$	- 7 43' 008	$-\Delta I_3 + x_w - y_w$	- 7 43' 158				
Hazaribagh	Tel. 2,	Jubbulpore	Tel. 1	1881-82	$\Delta I_1 - x_e + y_e$	21 40' 944	$\Delta I_1 - x_w + y_w$	21 40' 883			$s$ +0' 612	$s$ +0' 496
Hazaribagh	" 2,	Fyzabad	" 1	"	$-\Delta I_2 + x_w - y_e$	-12 55' 711	$-\Delta I_2 + x_e - y_w$	-12 55' 738				
Fyzabad	" 1,	Jubbulpore	" 2	"	$-\Delta I_3 + y_w - x_w$	- 8 44' 737	$-\Delta I_3 + y_e - x_e$	- 8 44' 533				
Jalpaiguri	Tel. 1,	Hazaribagh	Tel. 2	1881-82	$\Delta I_1 - y_e + x_e$	13 27' 170	$\Delta I_1 - y_w + x_w$	13 26' 986	$s$ -0' 206	$s$ +0' 178		
Jalpaiguri	" 1,	Calcutta	" 2	"	$-\Delta I_2 + y_1 - x_e$	- 1 30' 196	$-\Delta I_2 + y_e - x_w$	- 1 30' 514				
Calcutta	" 1,	Hazaribagh	" 2	"	$-\Delta I_3 + y_e - x_w$	-11 56' 796	$-\Delta I_3 + y_w - x_e$	-11 56' 648				
Chittagong	Tel. 1,	Calcutta	Tel. 2	1882-83	$\Delta I_1 - y_1 + x_e$	13 55' 274	$\Delta I_1 - y_w + x_w$	13 54' 977	$s$ -0' 260	$s$ +0' 207		
Chittagong	" 1,	Jalpaiguri	" 2	"	$-\Delta I_2 + y_e - x_e$	-12 25' 012	$-\Delta I_2 + y_w - x_w$	-12 24' 620				
Jalpaiguri	" 2,	Calcutta	" 1	"	$-\Delta I_3 + x_e - y_e$	- 1 30' 002	$-\Delta I_3 + x_w - y_w$	- 1 30' 564				
Jalpaiguri	Tel. 2,	Fyzabad	Tel. 1	1882-83	$\Delta I_1 - x_e + y_e$	26 22' 864	$\Delta I_1 - x_w + y_w$	26 23' 073	$s$ -0' 087	$s$ +0' 044		
Jalpaiguri	" 2,	Calcutta	" 1	"	$-\Delta I_2 + x_1 - y_e$	- 1 30' 002	$-\Delta I_2 + x_w - y_w$	- 1 30' 564				
Calcutta	" 1,	Fyzabad	" 2	"	$-\Delta I_3 + x_e - y_1$	-24 52' 775	$-\Delta I_3 + x_w - y_w$	-24 52' 553				
Calcutta	Tel. 1,	Jubbulpore	Tel. 2	1882-83	$\Delta I_1 - y_e + x_e$	33 37' 780	$\Delta I_1 - y_w + x_w$	33 37' 542	$s$ -0' 073	$s$ +0' 208		
Calcutta	" 1,	Fyzabad	" 2	"	$-\Delta I_2 + y_e - x_e$	-24 52' 775	$-\Delta I_2 + y_w - x_w$	-24 52' 553				
Fyzabad	" 1,	Jubbulpore	" 2	"	$-\Delta I_3 + y_e - x_e$	- 8 45' 078	$-\Delta I_3 + y_w - x_w$	- 8 44' 781				
Fyzabad	Tel. 1,	Agra	Tel. 2	1882-83	$\Delta I_1 - y_e + x_e$	16 28' 103	$\Delta I_1 - y_w + x_w$	16 27' 877	$s$ -0' 017	$s$ +0' 062		
Fyzabad	" 1,	Jubbulpore	" 2	"	$-\Delta I_2 + y_e - x_e$	- 8 45' 078	$-\Delta I_2 + y_w - x_w$	- 8 44' 781				
Jubbulpore	" 2,	Agra	" 1	1880-81	$-\Delta I_3 + x_e - y_e$	- 7 43' 008	$-\Delta I_3 + x_w - y_w$	- 7 43' 158				
Akyab	Tel. 1,	Calcutta	Tel. 2	1883-84	$\Delta I_1 - y_e + x_e$	18 9' 570	$\Delta I_1 - y_w + x_w$	18 9' 111	$s$ -0' 132	$s$ +0' 152		
Akyab	" 1,	Chittagong	" 2	"	$-\Delta I_2 + y_e - x_e$	- 4 14' 428	$-\Delta I_2 + y_w - x_w$	- 4 13' 982				
Chittagong	" 1,	Calcutta	" 2	"	$-\Delta I_3 + y_e - x_e$	-13 55' 274	$-\Delta I_3 + y_w - x_w$	-13 54' 977				
Promo	Tel. 1,	Chittagong	Tel. 2	1883-84	$\Delta I_1 - y_e + x_e$	13 30' 698	$\Delta I_1 - y_w + x_w$	13 30' 369	$s$ -0' 082	$s$ +0' 323		
Promo	" 1,	Akyab	" 2	"	$-\Delta I_2 + y_e - x_e$	- 9 16' 352	$-\Delta I_2 + y_w - x_w$	- 9 16' 064				
Akyab	" 1,	Chittagong	" 2	"	$-\Delta I_3 + y_e - x_e$	- 4 14' 428	$-\Delta I_3 + y_w - x_w$	- 4 13' 982				
Promo	Tel. 1,	Chittagong	Tel. 2	1883-84	$\Delta I_1 - y_e + x_w$	13 30' 531	$\Delta I_1 - y_w + x_e$	13 30' 388			$s$ -0' 080	$s$ +0' 153
Promo	" 1,	Akyab	" 2	"	$-\Delta I_2 + y_e - x_w$	- 9 16' 298	$-\Delta I_2 + y_w - x_e$	- 9 16' 203				
Akyab	" 1,	Chittagong	" 2	"	$-\Delta I_3 + y_e - x_w$	- 4 14' 313	$-\Delta I_3 + y_w - x_e$	- 4 14' 032				
Moulmein	Tel. 2,	Akyab	Tel. 1	1883-84	$\Delta I_1 - x_e + y_e$	18 54' 883	$\Delta I_1 - x_w + y_w$	18 55' 018	$s$ -0' 078	$s$ +0' 225		
Moulmein	" 2,	Promo	" 1	"	$-\Delta I_2 + x_e - y_e$	- 9 38' 609	$-\Delta I_2 + x_w - y_w$	- 9 38' 729				
Promo	" 1,	Akyab	" 2	"	$-\Delta I_3 + y_e - x_e$	- 9 16' 352	$-\Delta I_3 + y_w - x_w$	- 9 16' 064				
Moulmein	Tel. 2,	Akyab	Tel. 1	1883-84	$\Delta I_1 - x_e + y_w$	18 54' 925	$\Delta I_1 - x_w + y_e$	18 54' 925			$s$ -0' 061	$s$ +0' 088
Moulmein	" 2,	Promo	" 1	"	$-\Delta I_2 + x_e - y_w$	- 9 38' 688	$-\Delta I_2 + x_w - y_e$	- 9 38' 634				
Promo	" 1,	Akyab	" 2	"	$-\Delta I_3 + y_e - x_w$	- 9 16' 298	$-\Delta I_3 + y_w - x_e$	- 9 16' 203				

## APPENDIX.

TABLE E9. FORMATION OF RESIDUALS FROM INDEPENDENT EXPERIMENTS, SEASON 1883-84.

Name of Station and Telescope used	Date of Observation	Pivot change from first Date to second	Clock Rate Correction		$x_e - x_w$	$y_e - y_w$
			Symbolical	£ Clock		
Akyab Tel. 1	Dec. 17 to Dec. 20	<i>I.P.E.</i> to <i>I.P.W.</i>	$r - x_e + x_w$	+ 1'612	+ 0'062	
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 1'735	+ 0'012	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 1'710		
	„ 20 „ „ 21	<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 0'838	+ 0'072	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 0'695	+ 0'072	
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 0'838		
	„ 21 „ Jan. 6	<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 12'222	+ 0'084	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 12'055		
	Jan. 6 „ „ 7	<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 0'862	- 0'005	
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 0'853	+ 0'021	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 0'811		
Promé „ 1	Feb. 3 „ Feb. 4	<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 0'712	- 0'003	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 0'718	+ 0'081	
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_e$	+ 0'880		
	„ 23 „ „ 24	<i>I.P.E.</i> „ <i>I.P.E.</i>	$r - x_e + x_e$	+ 2'629	- 0'007	
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 2'636		
Chittagong „ 2	„ 24 „ Mar. 7	<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - x_e + x_w$	+ 30'114	+ 0'086	
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - x_w + x_w$	+ 30'200		
	Jan. 26 „ Jan. 27	<i>I.P.E.</i> „ <i>I.P.E.</i>	$r - y_e + y_e$	+ 0'933	.....	- 0'229
		<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - y_e + y_w$	+ 1'162		
Akyab „ 2	Feb. 11 „ Feb. 12	<i>I.P.E.</i> „ <i>I.P.E.</i>	$r - y_e + y_e$	- 23'064	.....	- 0'361
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - y_w + y_e$	- 23'425		
	„ 11 „ „ 16	<i>I.P.E.</i> „ <i>I.P.E.</i>	$r - y_e + y_e$	- 20'180	.....	- 0'315
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - y_w + y_e$	- 20'495		
	„ 16 „ „ 17	<i>I.P.E.</i> „ <i>I.P.W.</i>	$r - y_e + y_w$	+ 7'908	.....	- 0'308
		<i>I.P.W.</i> „ <i>I.P.W.</i>	$r - y_w + y_w$	+ 7'600		
	„ 17 „ „ 18	<i>I.P.W.</i> „ <i>I.P.W.</i>	$r - y_w + y_w$	+ 7'800	.....	- 0'328
		<i>I.P.W.</i> „ <i>I.P.E.</i>	$r - y_w + y_e$	+ 7'472	.....	- 0'114
		<i>I.P.W.</i> „ <i>I.P.W.</i>	$r - y_w + y_w$	+ 7'586		

TABLE E 10. SHOWING THE COMBINATIONS OF  $x_e$ ,  $x_w$ ,  $y_e$  AND  $y_w$ , AND THE VALUES DEDUCED FROM THEM FOR EACH ARC.

Name and Number of Arc	$(y_e - y_w)$ — $(x_e - x_w)$	$y_e - x_e$	$y_w - x_w$	$y_e - y_w$	$x_e - x_w$	$y_e - x_w$	$y_w - x_e$	Deducted Value of			
								$x_e$	$x_w$	$y_e$	$y_w$
Fyzabad-Agra (16)	— 0.225	— 0.017	+ 0.062	...	...	...	...	+ 0.033	— 0.055	— 0.033	+ 0.055
Fyzabad-Jubbulpore (15)	— 0.287	— 0.045	+ 0.135	..	...	...	...	+ 0.040	— 0.085	— 0.040	+ 0.085
Calcutta-Jubbulpore (14)	— 0.216	— 0.073	+ 0.208	...	...	...	...	+ 0.026	— 0.093	— 0.026	+ 0.093
Calcutta-Fyzabad (13)	— 0.190	— 0.080	+ 0.126	..	...	...	...	+ 0.037	— 0.060	— 0.037	+ 0.060
Jalpaiguri-Fyzabad (9)	— 0.177	— 0.087	+ 0.044	...	...	...	...	+ 0.051	— 0.030	— 0.051	+ 0.030
Jalpaiguri-Calcutta (10)	— 0.533	— 0.184	+ 0.143	...	...	...	...	+ 0.126	— 0.106	— 0.126	+ 0.106
Chittagong-Calcutta (12)	— 0.306	— 0.196	+ 0.180	...	...	...	...	+ 0.086	— 0.078	— 0.086	+ 0.078
Chittagong-Jalpaiguri (11)	— 0.339	— 0.260	+ 0.207	..	...	...	...	+ 0.109	— 0.082	— 0.109	+ 0.082
Prome-Chittagong (19)	...	— 0.082	+ 0.323	— 0.230	+ 0.078	— 0.080	+ 0.153	+ 0.001	— 0.080	— 0.098	+ 0.177
Akyab-Chittagong (18)	...	— 0.107	+ 0.238	— 0.339	+ 0.064	— 0.080	+ 0.153	+ 0.005	— 0.056	— 0.132	+ 0.183
Prome-Akyab (20)	...	— 0.080	+ 0.274	— 0.216	+ 0.078	— 0.071	+ 0.120	+ 0.010	— 0.070	— 0.092	+ 0.153
Akyab-Calcutta (17)	...	— 0.132	+ 0.152	— 0.338	+ 0.167	— 0.068	+ 0.103	+ 0.049	— 0.063	— 0.135	+ 0.148
Moulmein-Prome (22)	...	— 0.078	+ 0.225	— 0.108	+ 0.037	— 0.061	+ 0.088	+ 0.007	— 0.050	— 0.062	+ 0.105
Moulmein-Akyab (21)	...	— 0.078	+ 0.225	— 0.115	+ 0.043	— 0.061	+ 0.088	+ 0.008	— 0.052	— 0.064	+ 0.107

TABLE E 11. COMPARISON OF THE VALUES OF  $\Delta L$  BEFORE AND AFTER THE APPLICATION OF THE CORRECTIONS  $x_e$ ,  $x_w$ ,  $y_e$  AND  $y_w$ .

Station observed at and Telescope used	Number of Arc	Pivot Position		Unadjusted Value of		Correction	Corrected Value of	
		Tel. 1	Tel. 2	$\Delta L$	Mean		$\Delta L$	Mean
(E) Fyzabad Tel. 1	(16)	I.P.E.	I.P.E.	$\begin{smallmatrix} m & s \\ 16 & 28.103 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ 16 & 27.990 \end{smallmatrix}$	— 0.066	$\begin{smallmatrix} m & s \\ 16 & 28.037 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ 16 & 28.012 \end{smallmatrix}$
(W) Agra „ 2		I.P.W.	I.P.W.	27.877	16 27.990	+ 0.110	27.987	
(E) Fyzabad Tel. 1	(15)	I.P.E.	I.P.E.	8 45.078	8 44.929	— 0.080	8 44.998	8 44.974
(W) Jubbulpore „ 2		I.P.W.	I.P.W.	44.781		+ 0.170	44.951	
(E) Calcutta Tel. 1	(14)	I.P.E.	I.P.E.	33 37.780	33 37.662	— 0.052	33 37.728	33 37.728
(W) Jubbulpore „ 2		I.P.W.	I.P.W.	37.542		+ 0.186	37.728	
(E) Calcutta Tel. 1	(13)	I.P.E.	I.P.E.	24 52.775	24 52.664	— 0.074	24 52.701	24 52.687
(W) Fyzabad „ 2		I.P.W.	I.P.W.	52.553		+ 0.120	52.673	

The means entered in columns 6 and 9 are not in all cases merely the arithmetic means of the corresponding numbers in columns 5 and 8, but are weighted in proportion to the number of observations in each combination of pivots.

TABLE E11. COMPARISON OF THE VALUES OF  $\Delta L$  BEFORE AND AFTER THE APPLICATION OF THE CORRECTIONS $x_e, x_w, y_e$  AND  $y_w$ —(Continued).

Station observed at and Telescope used		Number of Arc	Pivot Position		Unadjusted Value of		Correction	Corrected Value of	
			Tel. 1	Tel. 2	$\Delta L$	Mean		$\Delta L$	Mean
(E) Jalpaiguri	Tel. 2	(9)	<i>I.P.E.</i>	<i>I.P.E.</i>	<i>m s</i> 26 22'864	<i>m s</i>	<i>s</i> + '102	<i>m s</i> 26 22'966	<i>m s</i>
(W) Fyzabad	" 1		<i>I.P.W.</i>	<i>I.P.W.</i>	23'073	26 22'979	- '060	23'013	26 23'001
(E) Jalpaiguri	Tel. 2	(10)	<i>I.P.E.</i>	<i>I.P.E.</i>	1 30'002		+ '252	1 30'254	
(W) Calcutta	" 1		<i>I.P.W.</i>	<i>I.P.W.</i>	30'564	1 30'283	- '212	30'352	1 30'303
(E) Chittagong	Tel. 1	(12)	<i>I.P.E.</i>	<i>I.P.E.</i>	13 55'274		- '172	13 55'102	
(W) Calcutta	" 2		<i>I.P.W.</i>	<i>I.P.W.</i>	54'977	13 55'126	+ '156	55'133	13 55'118
(E) Chittagong	Tel. 1	(11)	<i>I.P.E.</i>	<i>I.P.E.</i>	12 25'012		- '218	12 24'794	
(W) Jalpaiguri	" 2		<i>I.P.W.</i>	<i>I.P.W.</i>	24'620	12 24'816	+ '164	24'784	12 24'789
		(17)	<i>I.P.E.</i>	<i>I.P.E.</i>	18 9'570		- '184	18 9'386	
(E) Akyab	Tel. 1		<i>I.P.W.</i>	<i>I.P.W.</i>	9'111		+ '211	9'322	
(W) Calcutta	" 2		<i>I.P.W.</i>	<i>I.P.E.</i>	9'435		- '072	9'363	
			<i>I.P.E.</i>	<i>I.P.W.</i>	9'297	18 9'353	+ '099	9'396	18 9'367
		(18)	<i>I.P.E.</i>	<i>I.P.E.</i>	4 14'428		- '137	4 14'291	
(E) Akyab	Tel. 1		<i>I.P.W.</i>	<i>I.P.W.</i>	13'982		+ '239	14'221	
(W) Chittagong	" 2		<i>I.P.W.</i>	<i>I.P.E.</i>	14'313		- '076	14'237	
			<i>I.P.E.</i>	<i>I.P.W.</i>	14'032	4 14'187	+ '178	14'210	4 14'238
		(19)	<i>I.P.E.</i>	<i>I.P.E.</i>	13 30'698		- '099	13 30'599	
(E) Promo	Tel. 1		<i>I.P.W.</i>	<i>I.P.W.</i>	30'369		+ '257	30'626	
(W) Chittagong	" 2		<i>I.P.W.</i>	<i>I.P.E.</i>	30'531		- '018	30'513	
			<i>I.P.E.</i>	<i>I.P.W.</i>	30'388	13 30'497	+ '176	30'564	13 30'576
		(20)	<i>I.P.E.</i>	<i>I.P.E.</i>	9 16'352		- '102	9 16'250	
(E) Promo	Tel. 1		<i>I.P.W.</i>	<i>I.P.W.</i>	16'064		+ '223	16'287	
(W) Akyab	" 2		<i>I.P.W.</i>	<i>I.P.E.</i>	16'298		- '022	16'276	
			<i>I.P.E.</i>	<i>I.P.W.</i>	16'203	9 16'229	+ '143	16'346	9 16'290
		(22)	<i>I.P.E.</i>	<i>I.P.E.</i>	9 38'609		+ '069	9 38'678	
(E) Moulmein	Tel. 2		<i>I.P.W.</i>	<i>I.P.W.</i>	38'729		- '155	38'574	
(W) Prome	" 1		<i>I.P.E.</i>	<i>I.P.W.</i>	38'688		- '098	38'590	
			<i>I.P.W.</i>	<i>I.P.E.</i>	38'634	9 38'667	+ '012	38'646	9 38'624
		(21)	<i>I.P.E.</i>	<i>I.P.E.</i>	18 54'883		+ '072	18 54'955	
(E) Moulmein	Tel. 2		<i>I.P.W.</i>	<i>I.P.W.</i>	55'018		- '159	54'859	
(W) Akyab	" 1		<i>I.P.E.</i>	<i>I.P.W.</i>	54'925		- '099	54'826	
			<i>I.P.W.</i>	<i>I.P.E.</i>	54'925	18 54'932	+ '012	54'937	18 54'888

The means entered in columns 6 and 9 are not in all cases merely the arithmetic means of the corresponding numbers in columns 5 and 8, but are weighted in proportion to the number of observations in each combination of pivots.

TABLE E 12. SHOWING CIRCUIT ERRORS BEFORE AND AFTER THE APPLICATION OF THE CORRECTIONS  $x_e$ ,  $x_w$ ,  $y_e$  AND  $y_w$ .

Number of Arc	Original Value		Corrected Value of	
	$\Delta L$	Circuit Error	$\Delta L$	Circuit Error
(16)	$m \quad s$ 16 27.990	$s$	$m \quad s$ 16 28.012	$s$
(1)	7 42.993		7 42.993	
(15)	8 44.929	+ 0.068	8 44.974	+ 0.045
(14)	33 37.662		33 37.728	
(13)	24 52.664		24 52.687	
(15)	8 44.929	+ 0.069	8 44.974	+ 0.067
(9)	26 22.979		26 23.001	
(13)	24 52.664		24 52.687	
(10)	1 30.283	+ 0.032	1 30.303	+ 0.011
(12)	13 55.126		13 55.118	
(11)	12 24.816		12 24.789	
(10)	1 30.283	+ 0.027	1 30.303	+ 0.026
(17)	18 9.353		18 9.367	
(18)	4 14.187		4 14.238	
(12)	13 55.126	+ 0.040	13 55.118	+ 0.011
(19)	13 30.497		13 30.576	
(20)	9 16.229		9 16.290	
(18)	4 14.187	+ 0.081	4 14.238	+ 0.048
(21)	18 54.932		18 54.888	
(20)	9 16.229		9 16.290	
(22)	9 38.667	+ 0.036	9 38.624	- 0.026



TABLE F. SPECIMEN OF FORM OF RECORDING THE OBSERVATIONS FOR COLLIMATION AND LEVEL.

Station Akyab, Arc Akyab-Calcutta, Season 1883-84, Telescope No. 1, Observer Major Heaviside, R.E.

Astronomical Date	Pivot Position	Collimation									Level	
		A	B	$A - B$ = e	D	E	$E - e$ = F	$\frac{D + F}{2}$ = C <sub>o</sub>	C <sub>s</sub>	$C_o - C_s$ = c <sub>1</sub>	M	$C_o - M$ = b
1883, Nov. $\begin{smallmatrix} d & h & m \\ 27 & 2 & 5 \end{smallmatrix}$	I. P. E.	92°3	19°2	73°1	1299°7	1415°7			1300°0		1298°1	
		94°5	18°3	76°2	99°2	17°3					98°0	
		94°9	19°2	75°7	1300°9	18°9					96°9	
		94°3	19°7	74°6	1°8	20°3					98°5	
		94°9	19°5	75°4	0°9	18°5						
		95°5	18°3	77°2	0°9	17°9					1297°9	- 0°7
" " 4 51	I. P. E.		Means	+ 75°4 + 124°4*	1300°6	1418°1	1293°7	1297°2		- 2°8		
		88°5	18°5	70°0	1302°5	1416°1					1299°5	
		90°0	18°4	71°6	2°9	16°5					99°5	
			Means	+ 70°8 + 116°8*	1302°7	1416°3	1299°5	1301°1		+ 1°1	98°4	
											98°8	
											1299°0	+ 2°1
" " 5 55	I. P. E.	89°0	18°3	70°7	1299°7	1417°0					1298°1	
		90°4	18°6	71°8	98°0	16°5					97°5	
		90°4	19°2	71°2	98°3	17°3					98°2	
		90°5	18°8	71°7	98°0	16°7					96°9	
			Means	+ 71°4 + 117°8*	1298°5	1416°9	1299°1	1298°8		- 1°2	1297°7	+ 1°1

N.B.—The signs given for e, c and b are for position I.P.E. They must be reversed for I.P.W.

In this table A is the reading of the South Collimator Micrometer when its moveable wire intersects the North Collimator cross, and B is its reading when the same wire intersects the South Collimator cross. D is the reading of the North Collimator cross and E of the South Collimator cross in the Transit Telescope. For explanation of the other symbols *vide* Part I, Chapter V, Sections 2, 3 and 4.

\* These numbers are obtained from those directly above them by multiplying by a quantity representing the proportion between the divisions of the South Collimator Micrometer and that of the Transit Telescope.

TABLE G. ABSTRACT OF RESULTS OF THE IDIOMETER OBSERVATIONS AND COMPARISON OF PERSONAL EQUATION AS OBTAINED FROM IDIOMETER AND STAR OBSERVATIONS, SEASON 1881-82.

Arc	Astronl. Date	Major Strahan's Observations				Major Heaviside's Observations				Relative Personal Equation			
		By Idiometer			By Zenith Stars $S_N - S_S$	By Idiometer			By Zenith Stars $H_N - H_S$	By Idiometer		By Star Observation	
		$S_n$	$S_s$	$S_n - S_s$		$H_n$	$H_s$	$H_n - H_s$		$S_n - H_n$	$S_s - H_s$	$S_N - H_N$	$S_S - H_S$
Fyzabad and Agra	1881	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
	Nov. 24	-0.045	-0.018	-0.027		...	...	...		...	...		
	" 25	-0.053	+0.010	-0.063		-0.073	-0.083	+0.010		+0.020	+0.093		
	" 28	-0.038	-0.005	-0.033		-0.093	-0.090	-0.003		+0.055	+0.085		
	" 29	-0.023	-0.053	+0.030		-0.090	-0.075	-0.015		+0.067	+0.022		
	" 30	-0.045	-0.030	-0.015		-0.093	-0.100	+0.007		+0.048	+0.070		
	Dec. 1	+0.040	+0.045	-0.005		-0.085	-0.093	+0.008		+0.125	+0.138		
	" 2	-0.040	-0.008	-0.032		-0.095	-0.075	-0.020		+0.055	+0.067		
	Means	...	...	-0.021	-0.016	...	...	-0.002	+0.007	+0.062	+0.079	-0.007	+0.016
Fyzabad and Jubbulpore	Dec. 12	...	...	...		-0.090	-0.070	-0.020		...	...		
	" 13	...	...	...		-0.080	-0.068	-0.012		...	...		
	" 14	-0.010	-0.003	-0.007		-0.093	-0.063	-0.030		+0.083	+0.060		
	" 16	-0.008	-0.018	+0.010		-0.060	-0.048	-0.012		+0.052	+0.030		
	" 19	-0.018	-0.005	-0.013		-0.058	-0.043	-0.015		+0.040	+0.038		
	" 20	-0.005	0.000	-0.005		-0.058	-0.040	-0.018		+0.053	+0.040		
	Means	...	...	-0.004	-0.001	...	...	-0.018	+0.023	+0.057	+0.042	-0.007	+0.016
Hazariabagh and Fyzabad	1882												
	Jan. 4	-0.035	-0.008	-0.027		...	...	...		...	...		
	" 5	-0.040	0.000	-0.040		-0.113	-0.088	-0.025		+0.073	+0.088		
	" 6	-0.010	+0.003	-0.013		-0.103	-0.088	-0.015		+0.093	+0.091		
	" 7	-0.035	-0.013	-0.022		-0.110	-0.100	-0.010		+0.075	+0.087		
	" 9	-0.010	+0.005	-0.015		-0.120	-0.088	-0.032		+0.110	+0.093		
	" 10	-0.015	-0.023	+0.008		-0.118	-0.105	-0.013		+0.103	+0.082		
	Means	...	...	-0.018	+0.014	...	...	-0.019	+0.032	+0.091	+0.088	-0.016	+0.011
Hazariabagh and Jubbulpore	Jan. 19	+0.040	+0.018	+0.022		-0.075	-0.065	-0.010		+0.115	+0.083		
	" 20	+0.018	-0.013	+0.031		-0.093	-0.068	-0.025		+0.111	+0.055		
	" 21	-0.025	-0.018	-0.007		-0.105	-0.088	-0.017		+0.080	+0.070		
	" 24	+0.038	+0.015	+0.023		-0.080	-0.060	-0.020		+0.118	+0.075		
	" 25	+0.038	+0.040	-0.002		-0.083	-0.060	-0.023		+0.121	+0.100		
	" 26	+0.038	+0.020	+0.018		-0.073	-0.078	+0.005		+0.111	+0.098		
	Means	...	...	+0.014	+0.029	...	...	-0.015	+0.027	+0.109	+0.080	-0.016	+0.011

TABLE G. ABSTRACT OF RESULTS OF THE IDIOMETER OBSERVATIONS AND COMPARISON OF PERSONAL EQUATION AS OBTAINED FROM IDIOMETER AND STAR OBSERVATIONS, SEASON 1881-82—(Continued).

Arc	Astronl. Date	Major Strahan's Observations				Major Heaviside's Observations				Relative Personal Equation			
		By Idiometer			By Zenith Stars	By Idiometer			By Zenith Stars	By Idiometer		By Star Observation	
		$S_n$	$S_s$	$S_n - S_s$	$S_N - S_S$	$H_n$	$H_s$	$H_n - H_s$	$H_N - H_S$	$S_n - H_n$	$S_s - H_s$	$S_N - H_N$	$S_S - H_S$
Calcutta and Hazaribagh	1882	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
	Feb. 8	-0.040	-0.043	+0.003		-0.070	-0.045	-0.025		+0.030	+0.002		
	" 9	-0.003	-0.033	+0.030		-0.063	-0.023	-0.040		+0.060	-0.010		
	" 10	-0.040	-0.033	-0.007		-0.085	-0.060	-0.025		+0.045	+0.027		
	" 13	-0.043	-0.043	0.000		-0.025	-0.058	+0.033		-0.018	+0.015		
	" 14	-0.035	-0.028	-0.007		-0.043	-0.055	+0.012		+0.008	+0.027		
	" 16	-0.053	-0.038	-0.015		-0.083	-0.073	-0.010		+0.030	+0.035		
	Means	...	...	+0.001	+0.029	...	...	-0.009	+0.021	+0.026	+0.016	-0.019	+0.006
Jalpaiguri and Hazaribagh	Feb. 25	-0.065	-0.053	-0.012		...	...	...		...	...		
	" 27	...	...	...		-0.088	-0.098	+0.010		...	...		
	Mar. 1	-0.045	-0.030	-0.015		-0.118	-0.110	-0.008		+0.073	+0.080		
	" 2	-0.053	-0.033	-0.020		-0.115	-0.105	-0.010		+0.062	+0.072		
	" 3	-0.050	-0.030	-0.020		-0.108	-0.118	+0.010		+0.058	+0.088		
	" 4	-0.060	-0.043	-0.017		-0.115	-0.120	+0.005		+0.055	+0.077		
	" 5	-0.053	-0.013	-0.040		-0.128	-0.130	+0.002		+0.075	+0.117		
	Means	...	...	-0.021	+0.042	...	...	+0.002	+0.030	+0.065	+0.087	-0.019	+0.006
Jalpaiguri and Calcutta	Mar. 17	-0.050	-0.040	-0.010		-0.125	-0.110	-0.015		+0.075	+0.070		
	" 19	-0.025	-0.020	-0.005		-0.095	-0.078	-0.017		+0.070	+0.058		
	" 22	-0.060	-0.035	-0.025		-0.115	-0.098	-0.017		+0.055	+0.063		
	Apr. 4	-0.060	-0.060	0.000		-0.080	-0.075	-0.005		+0.020	+0.015		
	" 5	-0.095	-0.070	-0.025		-0.063	-0.070	+0.007		-0.032	0.000		
	" 6	-0.060	-0.045	-0.015		-0.075	-0.073	-0.002		+0.015	+0.028		
	Means	...	...	-0.013	+0.007	...	...	-0.008	+0.052	+0.034	+0.039	-0.019	+0.006

TABLE II. SHOWING RESULTS OF EXAMINATION OF THE MICROMETER SCREW OF TELESCOPE NO. 2,  
AT AGRA, NOV. 22 AND 23, 1881.

Micrometer Readings	Equatorial Intervals in Seconds of Time by the following B.A.C. Stars							Value of 1 Revolution of Micrometer Head	
	Number of Star and Apparent Declination								
	960 84° 29' 32"	1235 85° 14' 33"	262 85° 37' 42"	4198 85° 21' 59"	960 84° 29' 32"	1061 86° 16' 30"	1235 85° 14' 33"		Mean
000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
100	2.169	2.223	2.198	2.325	2.247	2.287	2.331	2.254	2.254
200	4.455	4.487	4.464	4.455	4.513	4.549	4.546	4.496	2.242
300	6.732	6.735	6.769	6.739	6.837	6.785	6.785	6.769	2.273
400	8.950	9.000	9.013	8.910	9.113	9.027	9.092	9.015	2.246
500	11.293	11.306	11.264	11.153	11.389	11.296	11.356	11.294	2.279
600	13.510	13.529	13.614	13.502	13.674	13.583	13.588	13.571	2.277
700	15.729	15.843	15.927	15.730	16.026	15.884	15.910	15.864	2.293
800	17.976	18.025	18.170	18.014	18.206	18.120	18.150	18.094	2.230
900	20.261	20.322	20.422	20.273	20.520	20.369	20.381	20.364	2.270
1000	22.527	22.620	22.688	22.428	22.700	22.611	22.613	22.598	2.234
1100	24.832	24.802	24.978	24.850	24.928	24.906	24.919	24.888	2.290
1200	27.089	27.125	27.213	27.061	27.233	27.076	27.159	27.137	2.249
1300	29.393	29.439	29.495	29.240	29.470	29.377	29.539	29.422	2.285
1400	31.563	31.686	31.769	31.492	31.717	31.684	31.663	31.653	2.231
1500	33.868	33.868	34.013	33.784	33.964	33.952	33.935	33.912	2.259
1600	36.125	36.149	36.318	36.036	36.144	36.226	36.224	36.175	2.263
1700	38.496	38.455	38.577	38.320	38.506	38.430	38.464	38.464	2.289
1800	40.705	40.736	40.813	40.547	40.753	40.730	40.687	40.710	2.246
1900	42.942	42.967	43.064	42.839	43.057	42.956	43.051	42.982	2.272
2000	45.122	45.290	45.399	45.067	45.295	45.150	45.283	45.230	2.248
2100	47.446	47.513	47.582	47.367	47.542	47.483	47.514	47.492	2.262
2200	49.722	49.695	49.879	49.579	49.827	49.765	49.836	49.758	2.266
2300	51.940	51.959	52.130	51.855	52.074	52.072	52.043	52.010	2.252
2400	54.197	54.249	54.404	54.106	54.340	54.269	54.224	54.256	2.246
2500	56.473	56.513	56.602	56.358	56.616	56.504	56.530	56.514	2.258
2600	58.729	58.869	58.869	58.658	58.940	58.811	58.786	58.809	2.295
2700	61.004	...	...	60.877	61.110	61.093	60.993	61.015	2.206
2800	63.290	...	...	63.242	63.348	63.329	63.283	63.298	2.283
2900	65.518	...	...	65.462	65.585	65.512	65.597	65.535	2.237
3000	67.784	...	...	67.624	67.870	67.839	67.812	67.786	2.251
3100	69.877	...	...	69.900	70.137	69.997	70.093	70.001	2.215
3200	72.172	...	...	72.144	72.422	72.284	72.407	72.286	2.285
							Mean		2.25894

The letters B.A.C. signify British Association Catalogue. For explanation of this table vide Part I, Chapter V, Section 1.

**TABLE J. DETERMINATION OF THE RELATIVE VALUE OF THE MICROMETER SCREWS OF THE SOUTH COLLIMATOR AND OF THE TRANSIT TELESCOPE NO. 1.**

Measurement of Distance between the Fixed Wires of South Collimator	
By Screw of South Collimator	By Screw of Transit Telescope No. 1
309.78 Mean of 6 values	510.25 Mean of 4 values
309.85 " 6 "	509.28 " 4 "
309.76 " 16 "	511.08 " 4 "
	510.28 " 4 "
	510.60 " 4 "
	509.60 " 4 "
General Mean 309.80	General Mean 510.18

Hence the relative value of the Micrometer Screws =  $\frac{510.18}{309.80} = 1.6468$  which is the value adopted in this volume.  
 The formation and use of this table is explained in Part I, Chapter V, Section 1.

**TABLE K. DETERMINATION OF THE RELATIVE VALUE OF THE MICROMETER SCREWS OF THE SOUTH COLLIMATOR AND OF THE TRANSIT TELESCOPE NO. 2.**

Measurement of Distance between the Fixed Wires of South Collimator	
By Screw of South Collimator	By Screw of Transit Telescope No. 2
307.4 Mean of 10 values	509.5 Mean of 5 values
307.1 " 4 "	510.2 " 5 "
306.0 " 4 "	510.0 " 5 "
307.4 " 4 "	511.8 " 5 "
307.5 " 5 "	509.7 " 5 "
General Mean 307.1	General Mean 510.2

Hence the relative value of the Micrometer Screws =  $\frac{510.2}{307.1} = 1.6613$  which is the value adopted in this volume.  
 The formation and use of this table is explained in Part I, Chapter V, Section 1.

TABLE L. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 1,  
AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, SEASON 1881-82.

Name of Wire	November 23, <i>I.P.E.</i>				November 26, <i>I.P.E.</i>					Mean <i>I.P.E.</i>	Dec. 2, <i>I.P.W.</i>	Dec. 3, <i>I.P.W.</i>			Dec. 5, <i>I.P.W.</i>		Mean <i>I.P.W.</i>	Mean adopted for Season 1881-82
	B.A.C. 626	B.A.C. 784	B.A.C. 908	B.A.C. 960	B.A.C. 8336	B.A.C. 86	B.A.C. 154	B.A.C. 225	Polaris		51 Cephei	B.A.C. 8336	B.A.C. 225	Polaris	B.A.C. 225	Polaris		
	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
<i>A</i>	34'212	34'221	34'215	34'237	34'279	34'199	34'288	34'278	...	34'241	...	34'280	...	34'185	34'303	34'222	34'248	34'245
<i>B</i>	32'095	32'051	32'014	32'079	32'059	32'085	32'132	32'011	...	32'066	32'074	32'066	...	32'002	32'072	32'013	32'045	32'056
<i>C</i>	29'674	29'676	29'578	29'690	29'667	29'639	29'707	29'648	...	29'660	29'693	29'687	29'708	29'603	29'744	29'639	29'679	29'670
<i>D</i>	27'058	27'081	27'048	27'003	27'082	27'046	27'056	26'982	...	27'045	27'041	27'054	27'006	26'986	27'030	27'020	27'023	27'034
<i>E</i>	24'577	24'581	24'580	24'605	24'593	24'601	24'617	...	...	24'593	24'610	24'593	24'486	24'525	24'570	24'592	24'563	24'578
<i>F</i>	19'552	19'517	19'489	19'596	19'525	19'600	19'583	19'516	...	19'547	19'565	19'580	19'541	19'542	19'577	19'593	19'566	19'557
<i>G</i>	17'204	17'284	17'256	17'216	17'221	17'265	17'300	17'212	...	17'245	17'260	17'270	17'249	17'172	17'237	17'287	17'246	17'246
<i>H</i>	14'795	14'783	14'758	14'644	14'677	14'728	14'734	14'740	...	14'732	14'751	14'739	14'740	14'674	14'788	14'736	14'738	14'735
<i>I</i>	12'264	12'283	12'228	12'283	12'126	12'264	12'280	...	...	12'247	12'150	12'298	12'231	12'199	12'291	12'290	12'243	12'245
<i>J</i>	9'831	9'861	9'729	9'798	9'746	9'855	9'841	9'794	...	9'807	9'830	9'801	9'746	9'738	9'758	9'770	9'774	9'791
<i>K</i>	4'903	4'875	4'904	4'933	4'856	4'909	4'921	4'885	4'921	4'901	4'951	4'925	4'897	4'866	4'849	4'855	4'891	4'896
<i>L</i>	2'701	2'658	2'686	2'649	2'655	2'666	2'836	2'630	2'651	2'681	2'699	2'744	2'726	2'673	2'642	2'694	2'696	2'689
<i>M</i>	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000	0'000
<i>N</i>	2'251	2'375	2'296	2'351	2'345	2'353	2'283	2'340	2'376	2'330	2'277	2'270	2'328	2'292	2'340	2'294	2'300	2'315
<i>O</i>	4'794	4'828	4'794	4'798	4'801	4'854	4'765	4'801	4'873	4'812	4'767	4'746	4'777	4'811	4'813	4'781	4'783	4'798
<i>P</i>	9'637	9'751	9'667	9'673	9'711	9'708	9'643	9'734	9'665	9'688	9'660	9'629	9'686	9'692	9'710	9'642	9'670	9'679
<i>Q</i>	12'215	12'252	12'228	12'255	12'277	12'301	12'224	12'363	12'266	12'265	12'291	12'215	12'255	12'323	12'267	12'251	12'267	12'266
<i>R</i>	14'540	14'610	14'648	14'577	14'622	14'617	14'507	14'631	14'570	14'591	14'601	14'574	14'547	14'631	14'607	14'544	14'584	14'588
<i>S</i>	17'009	17'016	16'991	17'005	17'022	17'007	16'960	17'007	17'035	17'006	17'008	16'995	17'020	17'048	16'971	17'023	17'011	17'009
<i>T</i>	19'430	19'423	19'443	19'404	19'429	19'472	19'370	19'552	19'421	19'438	19'410	19'374	19'408	19'478	19'396	19'380	19'408	19'423
<i>U</i>	24'370	24'392	24'440	24'374	24'448	24'344	24'405	24'462	24'407	24'405	24'393	24'380	...	24'456	24'438	24'408	24'415	24'410
<i>V</i>	26'803	26'830	26'845	26'850	26'855	26'844	26'758	26'910	26'831	26'836	26'852	26'752	26'801	26'874	...	26'791	26'814	26'825
<i>W</i>	29'395	29'393	29'391	29'383	29'426	29'363	29'354	29'406	29'368	29'387	29'383	29'364	29'346	29'431	29'395	29'350	29'378	29'383
<i>X</i>	31'633	31'548	31'593	31'484	31'585	31'570	31'579	31'662	31'633	31'587	31'619	31'619	31'577	31'630	31'637	31'619	31'617	31'602
<i>Y</i>	34'188	34'174	34'200	34'141	34'210	34'199	34'104	...	34'170	34'173	34'188	34'155	34'146	34'249	34'146	34'174	34'176	34'175

TABLE M. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 1,  
AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, AND BY MICROMETER MEASUREMENTS, SEASON 1882-83.

Name of Wire	December 3, I.P.W.			December 3, I.P.E.		December 11, I.P.E.	Micrometer Measurement		Mean adopted for Season 1882-83
	B.A.C. 1565	B.A.C. 1598	Gr.* 514	Gr. 1630	Gr. 1631	Gr. 1109			
<i>A</i>	...	...	30'827	30'953	31'000	...	30'89	30'90	30'91
<i>B</i>	...	...	28'977	28'936	28'953	...	28'98	28'99	28'98
<i>C</i>	26'627	...	26'661	26'889	26'724	...	26'73	26'74	26'73
<i>D</i>	24'413	...	24'480	24'720	24'586	...	24'55	24'56	24'55
<i>E</i>	22'086	...	22'129	22'275	22'143	...	22'20	22'22	22'20
<i>F</i>	17'392	...	17'488	17'631	17'287	...	17'51	17'55	17'50
<i>G</i>	15'311	...	15'392	15'583	15'362	...	15'38	15'41	15'40
<i>H</i>	13'039	...	13'135	13'261	13'255	...	13'16	13'17	13'17
<i>I</i>	11'052	...	11'073	11'245	11'148	...	11'09	11'12	11'11
<i>J</i>	8'914	...	9'096	9'197	9'040	...	9'07	9'08	9'07
<i>K</i>	4'353	4'464	4'421	4'522	4'490	4'432	4'46	...	4'44
<i>L</i>	2'176	2'252	2'164	2'200	2'199	2'200	2'21	...	2'21
<i>M</i>	0'000	0'000	0'000	0'000	0'000	0'000	0'00	0'00	0'00
<i>N</i>	2'422	2'293	2'376	2'383	2'352	2'408	2'37	...	2'38
<i>O</i>	5'034	4'951	4'947	4'950	5'070	4'982	4'96	...	4'97
<i>P</i>	8'800	8'807	8'714	8'617	8'765	9'275	8'71	8'73	8'76
<i>Q</i>	11'109	...	10'980	10'908	10'904	11'017	10'98	11'00	10'99
<i>R</i>	13'172	13'109	13'076	13'078	12'766	13'122	13'06	13'11	13'07
<i>S</i>	15'746	15'666	15'579	15'583	15'698	15'625	15'63	15'66	15'65
<i>T</i>	17'771	17'816	17'700	17'661	17'775	17'779	17'71	17'75	17'74
<i>U</i>	22'199	22'058	22'095	22'000	22'082	22'172	22'11	22'13	22'11
<i>V</i>	24'489	24'513	24'462	24'322	24'433	24'577	24'50	24'53	24'50
<i>W</i>	26'760	26'725	26'669	26'675	26'662	26'780	26'73	26'75	26'73
<i>X</i>	28'975	28'876	28'850	28'722	28'923	29'014	28'90	28'94	28'91
<i>Y</i>	31'416	31'250	31'327	31'198	31'152	31'457	31'34	31'39	31'34

\* The letters Gr. refer to the Greenwich 9-Year Catalogue for 1872.

TABLE N. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 1,  
AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, AND BY MICROMETER MEASUREMENTS, SEASON 1883-84.

Name of Wire	November 22, I.P.E.			November 24, I.P.W.						Micrometer Measurement	Mean adopted for Season 1883-84
	B.A.C. 43	B.A.C. 68	B.A.C. 89	B.A.C. 2074	B.A.C. 2076	B.A.C. 2109	B.A.C. 2137	B.A.C. 2154	B.A.C. 2164		
<i>A</i>	31'02	30'90	30'84	30'88	30'81	30'84	30'84	30'88	...	30'89	30'89
<i>B</i>	29'03	28'97	28'94	29'01	29'00	28'87	29'00	28'93	...	29'00	28'98
<i>C</i>	26'77	26'56	26'67	26'73	26'80	26'69	26'68	26'73	...	26'74	26'72
<i>D</i>	24'57	24'45	...	24'60	24'53	24'49	24'56	24'52	...	24'57	24'55
<i>E</i>	22'24	22'16	22'16	22'26	22'25	22'13	22'20	22'25	...	22'23	22'22
<i>F</i>	17'56	17'47	17'44	17'51	17'51	17'46	17'48	17'48	...	17'52	17'50
<i>G</i>	15'44	15'36	15'40	15'37	15'44	15'35	15'40	15'38	15'29	15'40	15'39
<i>H</i>	13'17	13'01	13'19	13'17	13'16	13'17	13'08	13'17	13'10	13'16	13'15
<i>I</i>	11'12	11'08	11'06	11'16	11'16	11'07	11'16	11'03	11'08	11'09	11'10
<i>J</i>	9'10	9'03	9'05	9'09	9'16	9'12	9'08	9'15	9'06	9'09	9'09
<i>K</i>	4'53	4'34	4'43	4'41	4'48	4'40	4'44	4'41	4'42	4'45	4'44
<i>L</i>	2'27	2'17	2'25	2'27	2'21	2'20	2'20	2'27	2'18	2'23	2'22
<i>M</i>	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00
<i>N</i>	2'34	2'41	2'41	2'41	2'34	2'42	2'36	2'34	2'40	2'38	2'38
<i>O</i>	4'89	5'00	...	4'95	4'95	4'99	5'00	4'93	4'91	4'95	4'95
<i>P</i>	8'64	8'73	...	8'69	8'69	8'73	8'68	8'69	8'84	8'70	8'71
<i>Q</i>	10'98	10'96	...	10'96	11'03	10'99	11'00	10'93	10'97	10'98	10'98
<i>R</i>	12'96	13'10	...	13'03	12'96	13'09	13'00	13'01	13'05	13'06	13'04
<i>S</i>	15'58	15'72	...	15'44	15'64	15'59	15'64	15'57	15'72	15'63	15'62
<i>T</i>	17'56	17'95	...	...	17'64	17'73	17'64	17'68	17'74	17'72	17'71
<i>U</i>	22'02	22'19	...	22'06	22'05	22'13	22'12	22'06	22'16	22'10	22'10
<i>V</i>	24'43	24'63	...	24'46	24'39	24'55	24'44	24'46	24'46	24'49	24'49
<i>W</i>	26'63	26'86	...	26'67	26'66	26'73	26'68	26'73	26'75	26'72	26'72
<i>X</i>	28'82	28'91	...	28'87	28'87	28'91	28'84	28'87	28'88	28'89	28'88
<i>Y</i>	31'16	31'38	...	31'28	31'34	31'35	31'32	31'34	31'44	31'35	31'34



TABLE O. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 2, AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, AND BY MICROMETER MEASUREMENTS, SEASON 1881-82.

Name of Wire	November 19, <i>I.P.E.</i>					November 21, <i>I.P.W.</i>					Mean	Micrometer Measurement	Mean adopted for Season 1881-82
	B.A.C. 273	B.A.C. 4498	B.A.C. 960	B.A.C. 1061	B.A.C. 1235	B.A.C. 273	B.A.C. 4498	B.A.C. 960	B.A.C. 1061	B.A.C. 1235			
<i>A</i>	34' 316	34' 161	34' 421	34' 402	34' 147	34' 307	34' 147	34' 386	34' 259	34' 424	34' 297	34' 270	34' 284
<i>B</i>	32' 013	31' 927	31' 989	31' 938	31' 831	31' 931	31' 831	31' 985	31' 822	31' 902	31' 917	31' 878	31' 898
<i>C</i>	29' 407	29' 257	29' 500	29' 371	29' 265	29' 385	29' 265	29' 345	29' 288	29' 530	29' 361	29' 351	29' 356
<i>D</i>	26' 982	26' 942	27' 068	27' 193	26' 827	26' 961	26' 827	27' 012	26' 909	27' 058	26' 978	26' 950	26' 964
<i>E</i>	24' 479	24' 280	24' 424	24' 547	24' 398	24' 391	24' 398	24' 515	24' 354	24' 495	24' 428	24' 399	24' 414
<i>F</i>	19' 663	19' 545	19' 647	19' 658	19' 579	19' 584	19' 579	19' 695	19' 538	19' 642	19' 613	19' 558	19' 582
<i>G</i>	17' 201	17' 061	17' 138	17' 214	17' 026	17' 099	17' 026	17' 227	17' 108	17' 187	17' 129	17' 085	17' 107
<i>H</i>	14' 953	14' 696	14' 803	14' 874	14' 761	14' 747	14' 761	14' 865	14' 735	14' 914	14' 810	14' 763	14' 787
<i>I</i>	12' 291	12' 140	12' 313	12' 338	12' 284	12' 262	12' 284	12' 224	12' 181	12' 326	12' 264	12' 252	12' 258
<i>J</i>	9' 569	9' 535	9' 622	9' 608	9' 523	9' 576	9' 523	9' 631	9' 528	9' 722	9' 584	9' 523	9' 554
<i>K</i>	4' 952	4' 759	5' 018	4' 980	4' 826	4' 956	4' 826	5' 022	4' 823	4' 993	4' 916	4' 902	4' 909
<i>L</i>	2' 436	...	2' 480	2' 477	2' 405	2' 412	2' 405	2' 506	2' 431	2' 588	2' 460	2' 451	2' 456
<i>M</i>	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000	0' 000
<i>N</i>	2' 546	2' 581	2' 557	2' 490	2' 582	2' 625	2' 582	2' 478	2' 606	2' 464	2' 551	2' 581	2' 566
<i>O</i>	4' 879	5' 001	5' 046	4' 863	4' 996	4' 970	4' 996	4' 858	5' 011	4' 911	4' 953	4' 915	4' 934
<i>P</i>	9' 764	9' 825	...	9' 719	9' 790	9' 868	9' 790	9' 794	9' 847	9' 722	9' 791	9' 831	9' 811
<i>Q</i>	12' 140	12' 293	...	12' 130	12' 251	12' 359	12' 251	12' 090	12' 245	12' 119	12' 210	12' 247	12' 229
<i>R</i>	14' 649	14' 664	...	14' 575	14' 697	14' 729	14' 697	14' 615	14' 716	14' 665	14' 665	14' 693	14' 679
<i>S</i>	17' 340	17' 415	...	17' 259	17' 303	17' 482	17' 303	17' 363	17' 438	17' 286	17' 354	17' 408	17' 381
<i>T</i>	19' 777	19' 803	...	19' 697	19' 741	19' 584	19' 741	19' 666	19' 792	19' 609	19' 715	19' 778	19' 747
<i>U</i>	24' 400	24' 433	...	24' 235	24' 382	24' 506	24' 382	24' 294	24' 386	24' 313	24' 370	24' 407	24' 389
<i>V</i>	27' 171	27' 269	...	27' 088	27' 126	27' 228	27' 126	27' 088	27' 169	27' 000	27' 140	27' 149	27' 145
<i>W</i>	29' 498	29' 475	...	29' 357	...	29' 555	...	29' 441	...	29' 448	29' 447	29' 448	29' 448
<i>X</i>	31' 861	31' 798	...	31' 789	...	31' 883	...	31' 794	31' 816	31' 787	31' 817	31' 800	31' 809
<i>Y</i>	34' 413	34' 242	...	34' 265	...	34' 489	...	34' 357	34' 358	34' 382	34' 358	34' 369	34' 364

TABLE P. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 2,  
AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, SEASON 1882-83.

Name of Wire	December 4		December 7		December 8		December 12		Dec. 20	Dec. 22	January 3	January 5	Mean adopted for Season 1882-83
	R.P.L.* 98	Polaris	R.P.L. 158	R.P.L. 89	R.P.L. 158	R.P.L. 89	R.P.L. 93	Polaris	R.P.L. 93	R.P.L. 37	Polaris	Polaris	
<i>A</i>	31' 15	31' 24	31' 32	31' 23	31' 31	31' 16	31' 13	31' 25	31' 22	31' 26	31' 35	31' 26	31' 24
<i>B</i>	29' 10	29' 01	29' 16	29' 00	29' 10	29' 00	28' 99	29' 14	29' 04	29' 13	29' 09	29' 11	29' 07
<i>C</i>	26' 63	26' 65	26' 71	26' 57	26' 71	26' 57	26' 57	26' 72	26' 62	26' 57	26' 67	26' 65	26' 64
<i>D</i>	24' 34	24' 35	24' 50	24' 34	24' 44	24' 40	24' 38	24' 49	24' 41	24' 52	24' 49	24' 51	24' 43
<i>E</i>	22' 03	22' 04	22' 12	21' 98	22' 12	22' 04	22' 02	22' 14	22' 08	22' 11	22' 16	22' 11	22' 08
<i>F</i>	17' 58	17' 55	17' 69	17' 52	17' 63	17' 52	17' 55	17' 68	17' 70	17' 71	17' 70	17' 68	17' 63
<i>G</i>	15' 60	15' 44	15' 59	15' 48	15' 54	15' 48	15' 51	15' 58	15' 57	15' 66	15' 56	15' 56	15' 55
<i>H</i>	13' 21	13' 19	13' 27	13' 25	13' 27	13' 25	13' 29	13' 33	13' 38	13' 40	13' 33	...	13' 29
<i>I</i>	11' 08	11' 06	11' 12	11' 09	11' 17	11' 09	11' 10	11' 15	11' 16	11' 20	11' 11	11' 15	11' 12
<i>J</i>	8' 74	8' 77	8' 84	8' 79	8' 79	8' 79	8' 79	8' 84	8' 84	8' 93	8' 84	8' 77	8' 81
<i>K</i>	4' 06	4' 24	4' 42	4' 26	4' 37	4' 40	4' 34	4' 40	4' 39	4' 47	4' 42	4' 35	4' 34
<i>L</i>	1' 98	1' 96	2' 03	1' 97	2' 04	1' 97	2' 05	2' 04	2' 02	2' 12	2' 02	1' 99	2' 02
<i>M</i>	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00	0' 00
<i>N</i>	2' 55	2' 49	2' 44	2' 49	2' 44	2' 43	2' 46	2' 43	2' 51	2' 42	2' 47	2' 47	2' 47
<i>O</i>	4' 84	4' 78	4' 71	4' 72	4' 77	4' 72	4' 71	4' 72	...	4' 68	4' 74	4' 76	4' 74
<i>P</i>	9' 31	9' 20	9' 20	9' 18	9' 20	9' 18	9' 22	9' 23	9' 31	9' 15	9' 18	...	9' 21
<i>Q</i>	11' 49	11' 45	11' 35	11' 35	11' 41	11' 35	11' 42	11' 36	11' 36	11' 20	11' 36	11' 47	11' 38
<i>R</i>	13' 84	13' 71	13' 68	13' 64	13' 74	13' 64	13' 70	13' 63	13' 67	13' 62	13' 74	13' 76	13' 69
<i>S</i>	16' 17	16' 06	16' 01	16' 01	16' 06	16' 01	15' 97	...	15' 97	15' 96	16' 04	16' 07	16' 03
<i>T</i>	18' 36	18' 24	18' 16	18' 17	18' 27	18' 11	18' 16	18' 12	18' 13	18' 08	18' 23	18' 23	18' 19
<i>U</i>	22' 78	22' 63	22' 58	22' 63	22' 64	22' 50	22' 57	22' 55	22' 51	22' 55	22' 69	22' 64	22' 61
<i>V</i>	25' 12	24' 94	24' 91	24' 86	24' 91	24' 86	24' 84	24' 80	24' 76	24' 89	25' 01	24' 94	24' 90
<i>W</i>	27' 41	27' 24	27' 18	27' 16	27' 30	27' 09	27' 17	27' 11	27' 06	27' 16	27' 25	27' 27	27' 20
<i>X</i>	29' 64	29' 49	29' 45	29' 32	29' 51	29' 32	29' 36	29' 39	29' 33	29' 43	29' 62	29' 53	29' 45
<i>Y</i>	31' 88	31' 72	31' 72	31' 62	31' 72	31' 62	31' 57	31' 60	31' 59	31' 62	31' 81	31' 78	31' 69

\* The letters R.P.L. signify Radcliffe Polar List.

TABLE Q. EQUATORIAL INTERVALS IN SECONDS OF TIME OF EACH WIRE FROM THE CENTRE WIRE OF TELESCOPE NO. 2,  
AS DETERMINED BY TRANSITS OF CIRCUMPOLAR STARS, SEASON 1883-84.

Name of Wire	November 15, I.P.E.					November 16, I.P.E.				Mean adopted for Season 1883-84
	Gr. 2017	Gr. 2074	Gr. 2076	Gr. 2109	Gr. 2137	Gr. 2074	Gr. 2076	B.A.C. 7854	Gr. 2137	
<i>A</i>	31'29	31'06	31'06	31'22	31'05	31'11	31'16	31'33	31'28	31'17
<i>B</i>	29'11	28'97	28'91	29'07	28'96	28'91	28'89	29'09	29'06	29'00
<i>C</i>	26'71	26'59	26'40	26'54	26'56	26'58	26'76	26'75	26'70	26'62
<i>D</i>	24'40	24'26	24'29	24'51	24'32	24'25	24'25	24'47	24'45	24'36
<i>E</i>	22'15	22'03	21'86	21'95	21'92	21'89	21'88	22'14	22'16	22'00
<i>F</i>	17'70	17'63	17'46	17'52	17'79	17'42	17'38	17'69	17'60	17'58
<i>G</i>	15'63	15'59	15'51	15'49	15'51	15'38	15'34	15'69	15'71	15'54
<i>H</i>	13'34	13'55	13'38	13'20	13'24	13'15	13'15	13'38	13'31	13'30
<i>I</i>	11'16	11'13	11'27	11'06	11'03	11'14	11'15	11'19	11'10	11'14
<i>J</i>	8'83	8'95	8'81	8'80	8'76	8'87	8'78	8'87	8'84	8'83
<i>K</i>	4'44	4'40	4'37	4'31	4'29	4'37	4'39	4'39	4'42	4'38
<i>L</i>	2'04	2'10	1'93	2'01	1'95	1'99	2'07	2'06	2'00	2'02
<i>M</i>	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00	0'00
<i>N</i>	2'44	2'45	2'60	2'49	2'51	2'42	2'48	2'42	2'43	2'47
<i>O</i>	...	4'79	4'75	4'79	4'77	4'67	4'69	4'73	4'74	4'74
<i>P</i>	...	9'35	9'25	9'28	9'18	9'21	9'21	9'14	9'17	9'22
<i>Q</i>	11'33	11'49	11'53	11'38	11'42	11'36	11'32	11'33	11'39	11'40
<i>R</i>	13'65	13'58	13'73	13'70	13'69	13'58	13'57	13'67	13'65	13'65
<i>S</i>	...	15'90	16'03	16'05	16'02	15'94	15'92	16'06	16'06	16'00
<i>T</i>	18'09	18'07	18'23	18'25	18'24	18'05	18'08	18'17	18'19	18'15
<i>U</i>	22'49	22'43	22'52	22'56	...	22'37	22'43	22'56	22'59	22'50
<i>V</i>	24'92	24'64	24'73	24'93	...	24'70	24'78	24'85	24'88	24'80
<i>W</i>	27'16	26'87	27'09	27'22	...	26'99	27'00	27'13	27'17	27'08
<i>X</i>	29'45	29'27	29'24	29'47	...	29'26	29'26	29'39	29'39	29'34
<i>Y</i>	31'63	31'57	31'55	31'65	...	31'46	31'44	31'62	31'65	31'57

17805

# **ELECTRO-TELEGRAPHIC LONGITUDES**

## **PART II.**

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**1881-82, 1882-83 AND 1883-84.**

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## **INDIAN ARCS.**

---

**ABSTRACT OF THE OBSERVATIONS**

**AND**

**REDUCTION OF THE RESULTS.**



# **ELECTRO-TELEGRAPHIC LONGITUDES**

**1881-82**

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**INDIAN ARCS**

---

**ABSTRACT OF THE OBSERVATIONS**

**AND**

**REDUCTION OF THE RESULTS.**

## EXPLANATION OF TABLE I.

### *“Abstract of Determinations of Collimation and Level Correction-Constants.”*

The method followed in making the observations to determine Collimation and Level correction-constants is fully explained in Chapter VI, Volume IX of the *Account of the Operations of the Great Trigonometrical Survey of India*.

The results obtained are given in Abstract in the following table, and the meaning of the symbols used therein are here briefly recapitulated.

The contents of the table are divided into groups, one for each arc measured; and, in each group, the left and right hand sides contain data belonging to the East and West stations, respectively.

*All the transit wires are moveable by the telescope micrometer, on the reading of which, therefore, the collimation of the telescope depends.*

Columns 1 & 10 contain the astronomical dates.

- „ 2 & 11 contain the names of the stations, and indicate the telescope in use at each.
- „ 3 & 12 show the position of the telescopes on each day. *I. P. E.* (or *W*) meaning, Illuminated Pivot East (or West).
- „ 4 & 13. Headed  $C_0$ . This is the reading of the telescope micrometer, when so set that the centre wire is truly collimated, as found by observation.
- „ 5 & 14. Headed  $C_s$ . This is the reading of the telescope micrometer as set during the observation of star transits. The setting is arbitrary and is generally constant for each station.
- „ 6 & 15. Headed  $c_1$ . This is the collimation correction-constant. It is equal to  $C_0 - C_s$ , or  $C_s - C_0$ , when the position of the telescope is *I. P. E.*, or *I. P. W.*, respectively.
- „ 7 & 16. Headed  $c$ . This is simply  $c_1$ , altered to include the correction-constant for diurnal aberration.  $c$  is used in combination with each star's constant for computing the correction for collimation, which therefore includes the correction for diurnal aberration.
- „ 8 & 17. Headed  $M$ .  $M$  is the reading of the telescope micrometer when the centre wire and its reflection from the mercury coincide.
- „ 9 & 18. Headed  $b$ . This is the level correction-constant. It is equal to  $C_0 - M$ , or  $M - C_0$ , when the telescope is *I. P. E.*, or *I. P. W.*, respectively.

All these quantities are expressed in divisions of the telescope micrometer head, the values of which are as below.

In 1876.	Telescope No. 1,	1 division = $0^{\circ}.02245$ :	Telescope No. 2,	1 division = $0^{\circ}.02261$ .
In 1877.	„	„ = $0^{\circ}.02239$ :	„	„ = $0^{\circ}.02259$ .
In 1881.	„	„ = $0^{\circ}.02243$ :	„	„ = $0^{\circ}.02259$ .

Whenever there is more than one value of  $C_0$  or  $M$  for the same date, the mean of all the values has been employed to obtain  $c_1$  and  $b$ .

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 3

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>g</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>g</sub>	c <sub>1</sub>	c	M	b
1881			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1881			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Nov. 24	FYZABAD (Telescope No. 1)	I. P. E.	106.2	105.5	+ 0.7	- 0.1	100.3	+ 5.9	Nov. 24	AGRA (Telescope No. 2)	I. P. W.	16.7	15.0	- 1.7	- 2.5	13.0 7.6	- 3.7 - 9.1
" 25		"	103.4	105.0	- 1.6	- 2.4	99.2	+ 4.2	" 25		"	8.8	15.0	+ 6.2	+ 5.4	7.5 4.5	- 1.3 - 4.3
" 28		"	104.7	105.0	- 0.3	- 1.1	100.3 100.5	+ 4.4 + 4.2	" 28		"	12.4	15.0	+ 2.6	+ 1.8	13.7 9.8	+ 1.3 - 2.6
" 29		"	107.1 104.8	105.0 105.0	+ 2.1 - 0.2	+ 1.3 - 1.0	100.4 99.7	+ 6.7 + 5.1	" 29		"	14.8	15.0	+ 0.2	- 0.6	15.2 13.8	+ 0.4 - 1.0
" 30		I. P. W.	100.3 103.7	100.0 100.0	- 0.3 - 3.7	- 1.1 - 4.5	101.5 106.5	+ 1.2 + 2.8	" 30		I. P. E.	11.9	15.0	- 3.1	- 3.9	10.1 5.7	+ 1.8 + 6.2
Dec. 1		"	104.4	105.0	+ 0.6	- 0.2	106.4 108.4	+ 2.0 + 4.0	Dec. 1		"	8.2	15.0	- 6.8	- 7.6	7.1 4.7	+ 1.1 + 3.5
" 2		"	99.7  104.7	105.0  105.0	+ 5.3  + 0.3	+ 4.5  - 0.5	105.1  108.9	+ 5.4  + 4.2	" 2		"	7.7	15.0	- 7.3	- 8.1	7.2 3.9	+ 0.5 + 3.8
Dec. 12	FYZABAD (Telescope No. 1)	I. P. W.	13.2	15.0	+ 1.8	+ 1.0	17.8 18.6	+ 4.6 + 4.8	Dec. 12	JUBBULPORE (Telescope No. 2)	I. P. W.	108.4	110.0	+ 1.6	+ 0.8	108.1 103.8	- 0.3 - 4.6
" 13		"	14.3	15.0	+ 0.7	- 0.1	21.4	+ 7.1	" 13		"	101.7 96.8	100.0 100.0	- 1.7 + 3.2	- 2.5 + 2.4	101.5 99.0	- 0.2 + 2.2
" 14		"	14.3 17.0	15.0 15.0	+ 0.7 - 2.0	- 0.1 - 2.8	13.1 14.2	- 1.2 - 2.8	" 14		"	100.2 96.9	100.0 100.0	- 0.2 + 3.1	- 1.0 + 2.3	98.1 100.1	- 2.1 + 3.2
" 16		I. P. E.	15.4 15.3	15.0 15.0	+ 0.4 + 0.3	- 0.4 - 0.5	13.7 13.8	+ 1.7 + 1.5	" 16		I. P. E.	79.5 76.9	100.0 100.0	- 20.5 - 23.1	- 21.3 - 23.9	86.3 87.8	- 6.8 - 10.9
" 19		"	14.4 14.0	15.0 15.0	- 0.6 - 1.0	- 1.4 - 1.8	16.7 16.9	- 2.3 - 2.9	" 19		"	78.7 76.8	100.0 100.0	- 21.3 - 23.2	- 22.1 - 24.0	86.4 83.4	- 7.7 - 6.6
" 20		"	15.1	15.0	+ 0.1	- 0.7	15.7 15.3 16.4	- 0.6 - 0.2 - 1.3	" 20		"	76.3 78.9	100.0 100.0	- 23.7 - 21.1	- 24.5 - 21.9	85.9	- 9.6
1882									1882								
Jan. 4	HAZARIBAGH (Telescope No. 2)	I. P. E.	80.2 77.9	85.0 85.0	- 4.8 - 7.1	- 5.6 - 7.9	78.9 77.9	+ 1.3 0.0	Jan. 4	FYZABAD (Telescope No. 1)	I. P. W.	9.8 15.0	10.0 10.0	+ 0.2 - 5.0	- 0.6 - 5.8	13.2 15.7	+ 3.4 + 0.7
" 5		"	79.5 78.0	85.0 85.0	- 5.5 - 7.0	- 6.3 - 7.8	80.6 80.6	- 1.1 - 2.6	" 5		"	10.7  14.2	10.0 10.0	- 0.7 - 4.2	- 1.5 - 5.0	14.8 18.3	+ 4.1 + 4.1
" 6		"	92.1 79.7	85.0 85.0	+ 7.1 - 5.3	+ 6.3 - 6.1	95.5 86.1	- 3.4 - 6.4	" 6		"	14.1 15.2 16.2	15.0 15.0 15.0	+ 0.9 - 0.2 - 1.2	+ 0.1 - 1.0 - 2.0	9.0 10.0 10.2	- 5.1 - 5.2 - 6.0



4 TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS.

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>#</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>#</sub>	c <sub>1</sub>	c	M	b
1882	HAZARIBAGH (Telescope No. 2) — (Continued).	I. P. W.	d	d	d	d	d	d	1882	FYZABAD (Telescope No. 1) — (Continued).	I. P. E.	d	d	d	d	d	d
Jan. 7			104.6	100.0	- 4.6	- 5.4	103.4	- 1.2	Jan. 7			13.9	15.0	- 1.1	- 1.9	13.9	0.0
			93.4	100.0	+ 6.6	+ 5.8	99.7	+ 6.3				13.1	15.0	- 1.9	- 2.7	15.4	- 1.9
																14.7	- 1.6
" 9		"	98.9	100.0	+ 1.1	+ 0.3	95.9	- 3.0	" 9		"	13.1	15.0	- 1.9	- 2.7	11.7	+ 1.4
			91.6	100.0	+ 8.4	+ 7.6	93.0	+ 1.4				13.6	15.0	- 1.4	- 2.2	11.0	+ 2.4
																10.9	+ 2.7
" 10		"	93.8	100.0	+ 6.2	+ 5.4	88.4	- 5.4	" 10		"	14.5	15.0	- 0.5	- 1.3	10.5	+ 4.0
			91.4	100.0	+ 8.6	+ 7.8	86.5	- 4.9				14.3	15.0	- 0.7	- 1.5	11.3	+ 3.1
																11.2	+ 3.1
Jan. 19	HAZARIBAGH (Telescope No. 2)	I. P. W.	93.5	95.0	+ 1.5	+ 0.7	90.5	- 3.0	Jan. 19	JUBBULPORE (Telescope No. 1)	I. P. W.	16.3	15.0	- 1.3	- 2.1	15.0	- 1.3
			90.3	95.0	+ 4.7	+ 3.9	85.8	- 4.5				19.2	15.0	- 4.2	- 5.0	14.8	- 4.4
												20.9	15.0	- 5.9	- 6.7	16.4	- 4.5
" 20		"	97.8	95.0	- 2.8	- 3.6	94.3	- 3.5	" 20		"	22.8	20.0	- 2.8	- 3.6	18.2	- 3.2
			90.4	95.0	+ 4.6	+ 3.8	85.0	- 5.4				20.2	20.0	- 0.2	- 1.0		
												21.2	20.0	- 1.2	- 2.0	17.7	- 3.7
" 21		"	93.6	95.0	+ 1.4	+ 0.6	88.9	- 4.7	" 21		"	17.1	20.0	+ 2.9	+ 2.1	15.3	- 1.8
			91.3	95.0	+ 3.7	+ 2.9	85.3	- 6.0				18.8	20.0	+ 1.2	+ 0.4	18.1	- 0.7
												21.4	20.0	- 1.4	- 2.2	17.8	- 3.6
" 24		I. P. E.	89.9	90.0	- 0.1	- 0.9	91.6	- 1.7	" 24		I. P. E.	19.0	20.0	- 1.0	- 1.8	16.1	+ 2.9
			86.3	90.0	- 3.7	- 4.5	91.6	- 5.3				19.4	20.0	- 0.6	- 1.4	13.8	+ 5.6
" 25		"	84.1	90.0	- 5.9	- 6.7	92.1	- 8.0	" 25		"	18.6	20.0	- 1.4	- 2.2	14.9	+ 3.7
			85.8	90.0	- 4.2	- 5.0	91.6	- 5.8				18.9	20.0	- 1.1	- 1.9	16.3	+ 2.6
" 26		"	86.2	90.0	- 3.8	- 4.6	95.7	- 9.5	" 26		"	20.8	20.0	+ 0.8	0.0	15.5	+ 5.3
			79.8	90.0	- 10.2	- 11.0	89.2	- 9.4				19.5	20.0	- 0.5	- 1.3	14.1	+ 5.4
Feb. 8	CALCUTTA (Telescope No. 1)	I. P. W.	8.7	10.0	+ 1.3	+ 0.5	9.8	+ 1.1	Feb. 8	HAZARIBAGH (Telescope No. 2)	I. P. E.	83.7	85.0	- 1.3	- 2.1	84.6	- 0.9
			12.7	10.0	- 2.7	- 3.5	17.6	+ 4.9				85.4	85.0	+ 0.4	- 0.4	84.5	+ 0.9
			14.1	10.0	- 4.1	- 4.9	16.3	+ 2.2									
							17.7	+ 3.6									
" 9		"	8.9	10.0	+ 1.1	+ 0.3	17.9	+ 9.0	" 9		"	84.6	85.0	- 0.4	- 1.2	87.0	- 2.4
			9.3	10.0	+ 0.7	- 0.1	15.2	+ 5.9				82.8	85.0	- 2.2	- 3.0	85.2	- 2.4
			13.9	10.0	- 3.9	- 4.7	18.7	+ 4.8									
" 10		"	9.6	10.0	+ 0.4	- 0.4	17.1	+ 7.5	" 10		"	85.0	85.0	0.0	- 0.8	86.0	- 1.0
			14.3	10.0	- 4.3	- 5.1	17.3	+ 3.0				79.6	85.0	- 5.4	- 6.2	84.5	- 4.9
			11.8	10.0	- 1.8	- 2.6	19.1	+ 7.3									
" 13		I. P. E.	14.4	15.0	- 0.6	- 1.4	12.4	+ 2.0	" 13		I. P. W.	92.4	90.0	- 2.4	- 3.2	90.5	- 1.9
			15.9	15.0	+ 0.9	+ 0.1	14.5	+ 1.4				89.0	90.0	+ 1.0	+ 0.2	89.4	+ 0.4
" 14		"	15.3	15.0	+ 0.3	- 0.5	11.9	+ 3.4	" 14		"	89.9	90.0	+ 0.1	- 0.7	89.2	- 0.7
			14.8	15.0	- 0.2	- 1.0	11.4	+ 3.4				88.1	90.0	+ 1.9	+ 1.1	87.8	- 0.3
" 16		"	14.4	15.0	- 0.6	- 1.4	13.8	+ 0.6	" 16		"	88.6	90.0	+ 1.4	+ 0.6	89.1	+ 0.5
			16.7	15.0	+ 1.7	+ 0.9	12.9	+ 3.8				86.1	90.0	+ 3.9	+ 3.1	88.3	+ 2.2

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 5

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>8</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>8</sub>	c <sub>1</sub>	c	M	b
1882			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1882			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Feb. 25		I. P. W.	67.7	70.0	+ 2.3	+ 1.5	68.6	+ 0.9	Feb. 25		I. P. W.	91.0	90.0	- 1.0	- 1.8	92.8	+ 1.8
			70.7	70.0	- 0.7	- 1.5	69.1	- 1.6				86.7	90.0	+ 3.3	+ 2.5	91.6	+ 4.9
Mar. 1		"	65.9	70.0	+ 4.1	+ 3.3	63.3	- 2.6	Mar. 1		"	93.1	90.0	- 3.1	- 3.9	85.7	- 7.4
			68.2	70.0	+ 1.8	+ 1.0	66.6	- 1.6				87.0	90.0	+ 3.0	+ 2.2	88.8	+ 1.8
												87.2	90.0	+ 2.8	+ 2.0	88.2	+ 1.0
" 2		"	64.5	70.0	+ 5.5	+ 4.7	64.0	- 0.5	" 2		"	77.2	80.0	+ 2.8	+ 2.0	74.8	- 2.4
			66.9	70.0	+ 3.1	+ 2.3	65.7	- 1.2				78.3	80.0	+ 1.7	+ 0.9	79.4	+ 1.1
			67.4	70.0	+ 2.6	+ 1.8	67.5	+ 0.1									
" 3		I. P. E.	70.2	70.0	+ 0.2	- 0.6	69.7	+ 0.5	" 3		I. P. E.	74.9	80.0	- 5.1	- 5.9	77.4	- 2.5
							70.3	- 0.3				75.5	80.0	- 4.5	- 5.3	76.0	- 0.5
			69.7	70.0	- 0.3	- 1.1	70.8	- 1.1									
" 4		"	67.3	70.0	- 2.7	- 3.5	69.6	- 2.3	" 4		"	77.2	80.0	- 2.8	- 3.6	75.2	+ 2.0
							69.0	- 0.3				73.2	80.0	- 6.8	- 7.6	73.9	- 0.7
			70.1	70.0	+ 0.1	- 0.7	69.5	+ 0.6									
" 5		"	70.7	70.0	+ 0.7	- 0.1	69.6	+ 1.1	" 5		"	73.2	80.0	- 6.8	- 7.6	75.7	- 2.5
			69.4	70.0	- 0.6	- 1.4	69.4	0.0				72.9	80.0	- 7.1	- 7.9	74.4	- 1.5
Mar. 17		I. P. E.	65.9	70.0	- 4.1	- 4.9	68.1	- 2.2	Mar. 17		I. P. W.	78.5	80.0	+ 1.5	+ 0.7	72.2	- 6.3
							66.9	+ 0.1				73.7	80.0	+ 6.3	+ 5.5	70.1	- 3.6
			68.0	70.0	- 2.0	- 2.8	67.5	+ 0.5									
" 19		"	71.7	70.0	+ 1.7	+ 0.9	67.0	+ 4.7	" 19		"	76.1	80.0	+ 3.9	+ 3.1	74.4	- 1.7
			69.8	70.0	- 0.2	- 1.0	66.6	+ 3.2				73.8	80.0	+ 6.2	+ 5.4	69.8	- 4.0
" 22		"	68.4	70.0	- 1.6	- 2.4	65.6	+ 1.6	" 22		"	74.4	80.0	+ 5.6	+ 4.8	75.7	+ 1.3
			65.7	70.0	- 4.3	- 5.1						73.2	80.0	+ 6.8	+ 6.0	69.7	- 3.5
			67.6	70.0	- 2.4	- 3.2	64.9	+ 2.3									
Apr. 4		I. P. W.	58.1	60.0	+ 1.9	+ 1.1	62.5	+ 5.2	Apr. 4		I. P. E.	74.4	80.0	- 5.6	- 6.4	75.9	- 1.5
			56.9	60.0	+ 3.1	+ 2.3						75.7	80.0	- 4.3	- 5.1	76.8	- 1.1
			57.9	60.0	+ 2.1	+ 1.3	62.4	+ 5.3									
" 5		"	55.6	60.0	+ 4.4	+ 3.6	62.5	+ 6.9	" 5		"	78.3	80.0	- 1.7	- 2.5	76.9	+ 1.4
			56.6	60.0	+ 4.4	+ 3.6						73.8	80.0	- 6.2	- 7.0	78.0	- 4.2
			60.9	60.0	- 0.9	- 1.7	63.4	+ 4.7									
" 6		"	58.5	60.0	+ 1.5	+ 0.7	62.7	+ 4.2	" 6		"	77.0	80.0	- 3.0	- 3.8	80.3	- 3.3
			59.1	60.0	+ 0.9	+ 0.1	61.8	+ 2.7				71.7	80.0	- 8.3	- 9.1	77.0	- 5.3

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deduced Value of Deviation Correction $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
FYZABAD AND AGRA	AGRA (Latitude $27^{\circ} 10'$ )	1881 Nov. 25	I. P. W.	E	1364 Gr. 72	L	1	+0.2149	$h\ m\ s$ 3 22 45.10	-1.25	+0.24	+1.69		45.78	$h\ m\ s$ 3 3 23.10	-19 22.68	
				"	326 "	U	4	-0.2958	3 47 35.33	+1.86	-0.50	+1.69	+0.13	38.51	3 28 23.74	-19 14.77	-15.5
				W	8 Ursæ Minoris	L	3	+0.3485	6 10 50.07	-2.06	+0.43	-1.69		46.75	6 9 59.73	-0 47.02	
				"	51 Cephei	U	3	-0.4024	6 45 45.37	+2.51	-0.65	-1.69	-0.12	45.42	6 45 14.97	-0 30.45	-22.1
		" 28	"	E	1364 Gr. 72	L	5	+0.2149	3 22 18.50	-0.42	+0.06	+1.70		19.84	3 3 23.22	-18 56.62	
				"	326 "	U	4	-0.2958	3 47 3.40	+0.62	-0.12	+1.70	+0.13	5.73	3 28 23.70	-18 42.03	-28.6
				W	8 Ursæ Minoris	L	5	+0.3485	6 11 6.76	-0.69	+0.11	-1.70		4.48	6 9 58.99	-1 5.49	
				"	51 Cephei	U	5	-0.4024	6 45 56.70	+0.84	-0.16	-1.70	-0.12	55.56	6 45 16.09	-0 39.47	-34.7
		" 29	"	E	1364 Gr. 72	L	4	+0.2149	3 22 8.98	+0.14	+0.03	+1.69		10.84	3 3 23.26	-18 47.58	
				"	326 "	U	4	-0.2958	3 46 53.98	-0.21	-0.05	+1.69	+0.13	55.54	3 28 23.68	-18 31.86	-30.8
				W	8 Ursæ Minoris	L	5	+0.3485	6 11 9.62	+0.23	+0.05	-1.69		8.21	6 9 58.79	-1 9.42	
				"	51 Cephei	U	5	-0.4024	6 45 61.32	-0.28	-0.07	-1.69	-0.12	59.16	6 45 16.41	-0 42.75	-35.5
		" 30	I. P. E.	E	1364 Gr. 72	L	4	+0.2149	3 21 57.93	+0.90	-0.34	+1.70		60.19	3 3 23.30	-18 36.89	
				"	326 "	U	4	-0.2958	3 46 50.03	-1.34	+0.71	+1.70	+0.13	51.23	3 28 23.67	-18 27.56	-18.3
				W	8 Ursæ Minoris	L	5	+0.3485	6 11 3.22	+1.49	-0.61	0.00		4.10	6 9 58.60	-1 5.50	
				"	51 Cephei	U	4	-0.4024	6 46 10.75	-1.81	+0.93	-1.70	-0.12	8.05	6 45 16.70	-0 51.35	-18.8
		Dec. 1	"	E	1364 Gr. 72	L	2	+0.2149	3 21 47.25	+1.76	-0.20	+1.70		50.51	3 3 23.35	-18 27.16	
				"	326 "	U	4	-0.2958	3 46 40.90	-2.62	+0.41	+1.70	+0.13	40.52	3 28 23.65	-18 16.87	-20.1
				W	8 Ursæ Minoris	L	5	+0.3485	6 11 9.02	+2.89	-0.35	-1.70		9.86	6 9 58.41	-1 11.45	
				"	51 Cephei	U	4	-0.4024	6 46 16.38	-3.53	+0.53	-1.70	-0.12	11.56	6 45 17.00	-0 54.56	-22.5
		" 2	"	E	1364 Gr. 72	L	4	+0.2149	3 21 37.98	+1.87	-0.19	+1.69		41.35	3 3 23.40	-18 17.95	
				"	326 "	U	4	-0.2958	3 46 30.88	-2.79	+0.39	+1.69	+0.13	30.80	3 28 23.64	-18 7.16	-21.1
				W	8 Ursæ Minoris	L	6	+0.3485	6 11 12.23	+3.08	-0.34	-1.69		13.28	6 9 58.22	-1 15.06	
				"	51 Cephei	U	4	-0.4024	6 46 15.13	-3.76	+0.51	-1.69	-0.12	10.07	6 45 17.30	-0 52.77	-29.7
	FYZABAD (Latitude $26^{\circ} 47'$ )	1881 Nov. 25	I. P. E.	E	326 Gr. 72	U	4	-0.2969	3 29 15.28	-0.83	+0.74	+2.02		17.21	3 28 23.74	-0 53.47	
					8 Ursæ Minoris	L	5	+0.3495	6 10 47.52	+0.91	-0.64	-2.02	+0.86	46.63	6 9 59.73	-0 46.90	+10.2
					51 Cephei	U	3	-0.4039	6 46 7.40	-1.11	+0.96	-2.02	+1.05	6.28	6 45 14.97	-0 51.31	+5.9
					1364 Gr. 72	L	6	+0.2154	3 3 41.82	+0.25	-0.36	+1.67		40.26	3 3 23.22	-0 17.04	
		" 28	"	"	326 "	U	3	-0.2969	3 28 48.07	-0.38	+0.75	+1.67	+0.13	50.24	3 28 23.70	-0 26.54	+18.6
					8 Ursæ Minoris	L	4	+0.3495	6 10 19.10	+0.42	-0.65	-1.67		17.20	6 9 58.99	-0 18.21	
					51 Cephei	U	4	-0.4039	6 45 38.43	-0.51	+0.99	-1.67	+0.19	37.43	6 45 16.09	-0 21.34	+4.2

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed		Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
											Collimation	Level	Pen Equation $\phi$	Clock Rate				
FYZABAD AND AGRA FYZABAD (Latitude 26° 47')	1881								<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>h m s</i>	<i>m s</i>	<i>d</i>		
	Nov. 29	<i>I. P. E</i>	E	1364 Gr. 72	L	5		+0.2154	3 3 32.78	-0.05	-0.50	+1.70		33.93	3 3 23.26	-0 10.67		
				326 "	U	4		-0.2969	3 28 38.68	+0.07	+1.03	+1.70	+0.13	41.61	3 28 23.68	-0 17.93	+14.2	
				$\delta$ Ursæ Minoris	L	3		+0.3495	6 10 8.13	-0.08	-0.89	-1.70		5.46	6 9 58.79	-0 6.67		
				51 Cephei	U	1		-0.4039	6 45 31.30	+0.09	+1.85	-1.70	+0.19	31.23	6 45 16.41	-0 14.82	+10.8	
	" 30	<i>I. P. W.</i>	"	1364 Gr. 72	L	5		+0.2154	3 3 21.96	+0.65	-0.17	+1.68		24.12	3 3 23.30	-0 0.82		
				326 "	U	4		-0.2969	3 28 31.73	-0.97	+0.35	+1.68	+0.13	32.92	3 28 23.67	-0 9.25	+16.5	
				$\delta$ Ursæ Minoris	L	4		+0.3495	6 9 54.13	+1.07	-0.30	-1.68		53.22	6 9 58.60	+0 5.38		
				51 Cephei	U	4		-0.4039	6 45 27.10	-1.30	+0.46	-1.68	+0.19	24.77	6 45 16.70	-0 8.97	+17.9	
	Dec. 1	"	"	1364 Gr. 72	L	5		+0.2154	3 3 11.80	+0.05	-0.26	+1.68		13.27	3 3 23.35	+0 10.08		
				326 "	U	4		-0.2969	3 28 22.50	-0.07	+0.53	+1.68	+0.13	24.77	3 28 23.65	-0 1.12	+21.9	
				$\delta$ Ursæ Minoris	L	4		+0.3495	6 9 45.18	+0.08	-0.45	-1.68		43.13	6 9 58.41	+0 15.28		
				51 Cephei	U	4		-0.4039	6 45 16.15	-0.09	+0.69	-1.68	+0.19	15.26	6 45 17.00	+0 1.74	+18.0	
	" 2	"	"	1364 Gr. 72	L	5		+0.2154	3 3 1.90	-0.46	-0.26	+1.68		2.86	3 3 23.40	+0 20.54		
				326 "	U	4		-0.2969	3 28 12.93	+0.69	+0.54	+1.68	+0.13	15.97	3 28 23.64	+0 7.67	+25.1	
				$\delta$ Ursæ Minoris	L	4		+0.3495	6 9 34.30	-0.76	-0.47	-1.68		31.39	6 9 58.22	+0 26.83		
				51 Cephei	U	4		-0.4039	6 45 7.65	+0.93	+0.71	-1.68	+0.19	7.80	6 45 17.30	+0 9.50	+23.0	
	FYZABAD AND JUBBULPORE FYZABAD (Latitude 26° 47')	1881																
		Dec. 12	<i>I. P. W.</i>	E	326 Gr. 72	U	4		-0.2969	3 29 28.08	+0.14	+0.96	+0.80		29.98	3 28 23.04	-1 6.94	
				"	1424 "	L	9		+0.1059	3 49 13.31	-0.04	-0.16	+0.80	+0.14	14.05	3 48 10.85	-1 3.20	+9.2
			W	$\delta$ Ursæ Minoris	L	5		+0.3494	6 2 59.00	-0.15	-0.83	-0.80		57.22	6 9 56.28	+6 59.06		
			"	51 Cephei	U	5		-0.4041	6 38 22.44	+0.19	+1.26	-0.80	+0.26	23.30	6 45 20.54	+6 57.24	+2.4	
" 13		"	E	326 Gr. 72	U	4		-0.2969	3 29 20.15	-0.38	+1.10	+0.79		21.66	3 28 22.92	-0 58.74		
			"	1424 "	L	5		+0.1059	3 49 1.70	+0.12	-0.18	+0.79	+0.14	2.57	3 48 10.89	-0 51.68	+17.5	
			W	$\delta$ Ursæ Minoris	L	4		+0.3494	6 2 49.95	+0.42	-0.95	-0.79		48.63	6 9 56.16	+7 7.53		
			"	51 Cephei	U	3		-0.4041	6 38 16.73	-0.51	+1.44	-0.79	+0.21	17.08	6 45 20.75	+7 3.67	+5.1	
" 14		"	E	326 Gr. 72	U	3		-0.2969	3 29 11.00	-0.52	-0.35	+0.81		10.94	3 28 22.79	-0 48.15		
			"	1424 "	L	9		+0.1059	3 48 49.78	+0.17	+0.22	+0.81	+0.14	51.12	3 48 10.93	-0 40.19	+19.9	
			W	$\delta$ Ursæ Minoris	L	4		+0.3494	6 2 39.53	+0.55	+0.30	-0.81		39.59	6 9 56.06	+7 16.47		
			"	51 Cephei	U	4		-0.4041	6 38 12.58	-0.70	-0.46	-0.81	+0.21	10.82	6 45 20.95	+7 10.13	+8.4	
" 16		<i>I. P. E.</i>	E	326 Gr. 72	U	3		-0.2969	3 28 41.60	-0.17	+0.28	+1.21		42.92	3 28 22.54	-0 20.38		
			"	1424 "	L	7		+0.1059	3 48 29.03	+0.01	-0.05	+1.21	+0.14	30.34	3 48 11.00	-0 19.34	+2.6	
			W	$\delta$ Ursæ Minoris	L	4		+0.3494	6 2 29.63	+0.19	-0.24	-1.21		28.37	6 9 55.87	+7 27.50		
			"	51 Cephei	U	3		-0.4041	6 37 47.77	-0.23	+0.37	-1.21	+0.21	46.91	6 45 21.33	+7 34.42	-9.2	

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Are	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant $\Delta$	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
										Colli-mation	Level	Pen Equation $Q$	Clock Rate				
FYZABAD (Latitude $26^{\circ} 47'$ )																	
		1881							<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>h m s</i>	<i>m s</i>	<i>d</i>	
		Dec. 19	<i>I. P. E.</i>	E	326 Gr. 72	U	3	-0.2969	3 28 10.90	-0.55	-0.46	+1.20		11.09	3 28 22.16	+0 11.07	
				"	1424 "	L	8	+0.1059	3 47 58.49	+0.02	+0.07	+1.20	+0.14	59.92	3 48 11.11	+0 11.19	+0.3
				W	$\delta$ Ursæ Minoris	L	4	+0.3494	6 2 4.23	+0.61	+0.39	-1.20		4.03	6 9 55.54	+7 51.51	
				"	51 Cephei	U	5	-0.4041	6 37 18.50	-0.74	-0.60	-1.20	+0.21	16.23	6 45 21.99	+8 5.76	-18.9
		" 20	"	E	326 Gr. 72	U	4	-0.2969	3 28 0.20	-0.24	-0.12	+1.20		1.04	3 28 22.04	+0 21.00	
				"	1424 "	L	9	+0.1059	3 47 49.18	+0.01	+0.02	+1.20	+0.14	50.55	3 48 11.15	+0 20.60	-1.0
				W	$\delta$ Ursæ Minoris	L	4	+0.3494	6 1 56.00	+0.27	+0.11	-1.20		55.18	6 9 55.42	+8 0.24	
				"	51 Cephei	U	4	-0.4041	6 37 9.08	-0.33	-0.16	-1.20	+0.21	7.60	6 45 22.24	+8 14.64	-19.1
JUBBULPORE (Latitude $23^{\circ} 10'$ )																	
		1881															
		Dec. 12	<i>I. P. W.</i>	W	326 Gr. 72	U	9	-0.3074	3 30 20.07	+0.28	-0.39	-1.72		18.24	3 28 23.04	-1 55.20	
					R. P. L. 115	L	8	+0.2557	3 46 60.14	-0.22	+0.21	-1.72	+0.10	58.51	3 45 14.40	-1 44.11	+19.7
					1424 Gr. 72	L	8	+0.1075	3 49 59.51	-0.09	+0.05	-1.72	+0.12	57.87	3 48 10.85	-1 47.02	+19.7
					$\delta$ Ursæ Minoris	L	4	+0.3582	6 11 36.70	-0.30	+0.32	+1.72		38.44	6 9 56.28	-1 42.16	
					51 Cephei	U	4	-0.4178	6 47 11.05	+0.37	-0.51	+1.72	+0.21	12.84	6 45 20.54	-1 52.30	+13.1
		" 13	"	"	326 Gr. 72	U	6	-0.3074	3 30 16.82	-0.03	+0.16	-1.70		15.25	3 28 22.92	-1 52.33	
					R. P. L. 115	L	4	+0.2557	3 46 48.48	+0.03	-0.09	-1.70	+0.10	46.82	3 45 14.49	-1 32.33	+35.5
					1424 Gr. 72	L	10	+0.1075	3 49 49.58	+0.01	-0.02	-1.70	+0.12	47.99	3 48 10.89	-1 37.10	+36.7
					$\delta$ Ursæ Minoris	L	5	+0.3582	6 11 22.40	+0.04	-0.13	+1.70		24.01	6 9 56.16	-1 27.85	
					51 Cephei	U	4	-0.4178	6 47 10.45	-0.05	+0.20	+1.70	+0.21	12.51	6 45 20.75	-1 51.76	+30.8
		" 14	"	"	326 Gr. 72	U	5	-0.3074	3 30 11.80	+0.24	+0.09	-1.68		10.45	3 28 22.79	-1 47.66	
					R. P. L. 115	L	5	+0.2557	3 46 38.66	-0.19	-0.05	-1.68	+0.10	36.84	3 45 14.58	-1 22.26	+45.1
					1424 Gr. 72	L	7	+0.1075	3 49 40.91	-0.08	-0.01	-1.68	+0.12	39.26	3 48 10.93	-1 28.33	+46.6
					$\delta$ Ursæ Minoris	L	6	+0.3582	6 11 11.28	-0.27	-0.08	+1.68		12.61	6 9 56.06	-1 16.55	
					51 Cephei	U	3	-0.4178	6 47 6.37	+0.33	+0.12	+1.68	+0.21	8.71	6 45 20.95	-1 47.76	+40.2
		" 16	<i>I. P. E.</i>	"	326 Gr. 72	U	5	-0.3074	3 29 60.78	-7.79	-1.39	-1.68		49.92	3 28 22.54	-1 27.38	
					R. P. L. 115	L	4	+0.2557	3 46 16.85	+6.09	+0.76	-1.68	+0.10	22.12	3 45 14.75	-1 7.37	+35.6
					1424 Gr. 72	L	8	+0.1075	3 49 21.44	+2.48	+0.19	-1.68	+0.12	22.55	3 48 11.00	-1 11.55	+38.1
					$\delta$ Ursæ Minoris	L	6	+0.3582	6 10 46.50	+8.61	+1.13	+1.68		57.92	6 9 55.87	-1 2.05	
					51 Cephei	U	4	-0.4178	6 46 59.33	-10.50	-1.81	+1.68	+0.21	48.91	6 45 21.33	-1 27.58	+32.9
		" 19	"	"	326 Gr. 72	U	5	-0.3074	3 29 33.10	-7.96	-1.12	-1.67		22.35	3 28 22.16	-1 0.19	
					R. P. L. 115	L	5	+0.2557	3 45 50.72	+6.23	+0.61	-1.67	+0.10	55.99	3 45 15.01	-0 40.98	+34.1
					1424 Gr. 72	L	8	+0.1075	3 48 55.00	+2.53	+0.15	-1.67	+0.12	56.13	3 48 11.11	-0 45.02	+36.6
					$\delta$ Ursæ Minoris	L	4	+0.3582	6 10 20.05	+8.79	+0.93	+1.67		31.44	6 9 55.54	-0 35.90	
					51 Cephei	U	4	-0.4178	6 46 33.23	-10.73	-1.46	+1.67	+0.21	22.92	6 45 21.99	-1 0.93	+32.3

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Are	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
FYZABAD AND JUBBULPORE	JUBBULPORE (Latitude $23^{\circ} 10'$ )	1881 Dec. 20	I. P. E.	W	326 Gr. 72	U	5	-0.3074	<i>h m s</i> 3 20 23.90	- 8.00	- 1.50	- 1.61		12.79	<i>h m s</i> 3 28 22.04	- 0 50.75	
					R. P. L. 115	L	5	+0.2557	3 45 41.18	+ 6.25	+ 0.82	- 1.61	+ 0.10	46.74	3 45 15.10	- 0 31.64	+ 33.9
					1424 Gr. 72	L	7	+0.1075	3 48 45.84	+ 2.54	+ 0.21	- 1.61	+ 0.12	47.10	3 48 11.15	- 0 35.95	+ 35.7
					8 Ursæ Minoris	L	6	+0.3582	6 10 9.63	+ 8.83	+ 1.24	+ 1.61		21.31	6 9 55.42	- 0 25.89	
					51 Cephei	U	4	-0.4178	6 46 23.70	- 10.78	- 1.95	+ 1.61	+ 0.21	12.79	6 45 22.24	- 0 50.55	+ 31.8
HAZARIBAGH AND FYZABAD	HAZARIBAGH (Latitude $24^{\circ} 0'$ )	1882 Jan. 4	I. P. E.	E	483 Gr. 72	U	13	-0.0901	5 7 3.82	- 0.75	+ 0.05	+ 1.43		4.55	5 7 45.96	+ 0 41.41	
				"	8 Ursæ Minoris	L	4	+0.3561	6 9 13.70	+ 2.59	- 0.09	- 1.43	+ 0.22	14.99	6 9 54.80	+ 0 39.81	- 3.6
				"	51 Cephei	U	4	-0.4151	6 44 45.50	- 3.16	+ 0.15	- 1.43	+ 0.36	41.42	6 45 24.36	+ 0 42.94	- 4.1
				W	R. P. L. 49	U	4	-0.2002	7 37 38.30 (* 48 7.58)	- 1.57	+ 0.08	0.00	+ 0.59	36.81 (* 6.68)	7 48 48.20	+ 0 41.52	- 3.1
		" 5	"	E	483 Gr. 72	U	12	-0.0901	5 6 58.83	- 0.79	- 0.12	+ 1.43		59.35	5 7 45.90	+ 0 46.55	
				"	8 Ursæ Minoris	L	5	+0.3561	6 9 6.50	+ 2.70	+ 0.25	- 1.43	+ 0.22	8.24	6 9 54.80	+ 0 46.56	0.0
				"	51 Cephei	U	4	-0.4151	6 44 43.28	- 3.30	- 0.40	- 1.43	+ 0.36	38.51	6 45 24.46	+ 0 45.95	+ 0.8
				W	R. P. L. 49	U	4	-0.2002	7 37 30.78 (* 48 5.15)	- 1.63	- 0.22	- 1.43	+ 0.59	27.50 (* 2.46)	7 48 48.28	+ 0 45.82	+ 1.3
		" 6	"	E	483 Gr. 72	U	10	-0.0901	5 6 52.15	+ 0.01	- 0.32	+ 1.43		53.27	5 7 45.84	+ 0 52.57	
				"	8 Ursæ Minoris	L	5	+0.3561	6 9 5.94	- 0.04	+ 0.66	- 1.43	+ 0.22	5.35	6 9 54.81	+ 0 49.46	- 6.9
				"	51 Cephei	U	3	-0.4151	6 44 32.53	+ 0.05	- 1.03	- 1.43	+ 0.36	30.48	6 45 24.53	+ 0 54.05	- 6.1
				W	R. P. L. 49	U	4	-0.2002	7 37 17.85 (* 47 57.74)	+ 0.02	- 0.56	- 1.43	+ 0.59	15.88 (* 36.36)	7 48 48.36	+ 0 52.00	- 4.6
		" 7	I. P. W.	E	483 Gr. 72	U	10	-0.0901	5 6 48.43	+ 0.02	+ 0.17	+ 1.41		50.03	5 7 45.78	+ 0 55.75	
				"	8 Ursæ Minoris	L	5	+0.3561	6 8 59.44	- 0.08	- 0.35	- 1.41	+ 0.22	57.82	6 9 54.85	+ 0 57.03	+ 2.9
				"	51 Cephei	U	3	-0.4151	6 44 29.63	+ 0.09	+ 0.54	- 1.41	+ 0.36	29.21	6 45 24.58	+ 0 55.37	+ 2.2
				W	R. P. L. 49	U	4	-0.2002	7 37 5.75 (* 47 52.05)	+ 0.05	+ 0.30	- 1.41	+ 0.59	4.69 (* 51.58)	7 48 48.45	+ 0 56.87	+ 0.3
		" 9	"	E	483 Gr. 72	U	10	-0.0901	5 6 37.84	+ 0.53	- 0.05	+ 1.41		39.73	5 7 45.67	+ 1 5.94	
				"	8 Ursæ Minoris	L	5	+0.3561	6 8 51.46	- 1.83	+ 0.11	- 1.41	+ 0.22	48.55	6 9 54.99	+ 1 6.44	+ 1.1
				"	51 Cephei	U	4	-0.4151	6 44 15.60	+ 2.23	- 0.17	- 1.41	+ 0.36	16.61	6 45 24.59	+ 1 7.98	- 2.0
				W	R. P. L. 49	U	4	-0.2002	7 36 42.70 (* 47 40.81)	+ 1.10	- 0.09	- 1.41	+ 0.59	42.30 (* 41.00)	7 48 48.62	+ 1 7.62	- 2.1

\* The numbers in brackets give the time by East Clock, corresponding to that by the West Clock in the line next above, as deduced from clock comparisons.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deduced Value of Deviation $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
HAZARIBAGH (Latitude $24^{\circ} 0'$ )																	
		1882							<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>h m s</i>	<i>m s</i>	<i>d</i>	
		Jan. 10	I. P. W.	E	483 Gr. 72	U	10	-0.0901	5 6 31.25	+ 0.82	- 0.34	+ 1.41		33.14	5 7 45.6	+ 1 12.47	
				"	8 Ursæ Minoris	L	4	+0.3561	6 8 48.45	- 2.81	+ 0.70	- 1.41	+0.22	45.15	6 9 55.0	+ 1 9.93	- 5.7
				"	51 Cephei	U	4	-0.4151	6 44 7.28	+ 3.44	- 1.09	- 1.41	+0.36	8.58	6 45 24.5	+ 1 15.99	- 7.8
				W	R. P. L. 49	U	4	-0.2002	7 36 31.33 (7 47 34.14)	+ 1.70	- 0.59	- 1.41	+0.59	31.03 (34.43)	7 48 48.70	+ 1 15.27	- 9.6
HAZARIBAGH AND FYZABAD																	
FYZABAD (Latitude $26^{\circ} 47'$ )																	
		1882															
		Jan. 4	I. P. W.	W	483 Gr. 72	U	9	-0.0868	5 9 28.63	-0.36	+0.14	+1.14		29.55	5 7 45.96	- 1 43.59	
					8 Ursæ Minoris	L	4	+0.3492	6 11 46.43	+1.02	-0.32	+1.14	+0.49	48.76	6 9 54.80	- 1 53.96	-23.8
					51 Cephei	U	4	-0.4044	6 47 1.43	-1.49	+0.48	+1.14	+0.76	2.32	6 45 24.36	- 1 37.96	-21.2
					R. P. L. 49	U	4	-0.1944	7 50 29.38	-0.74	+0.26	-1.14	+1.26	29.02	7 48 48.20	- 1 40.82	-24.2
		" 5	"	"	483 Gr. 72	U	9	-0.0868	5 9 19.04	-0.36	+0.30	+1.14		20.12	5 7 45.90	- 1 34.22	
					8 Ursæ Minoris	L	3	+0.3492	6 11 34.33	+1.22	-0.65	+1.14	+0.49	36.53	6 9 54.80	- 1 41.73	-17.2
					51 Cephei	U	4	-0.4044	6 46 51.88	-1.49	+0.99	+1.14	+0.76	53.28	6 45 24.46	- 1 28.82	-17.1
					R. P. L. 49	U	3	-0.1944	7 50 20.07	-0.74	+0.53	-1.14	+1.26	19.98	7 48 48.28	- 1 31.70	-18.4
		" 6	"	"	483 Gr. 72	U	8	-0.0868	5 9 8.44	-0.11	-0.38	+1.14		9.09	5 7 45.84	- 1 23.25	
					8 Ursæ Minoris	L	4	+0.3492	6 11 24.53	+0.38	+0.83	+1.14	+0.49	27.37	6 9 54.81	- 1 32.56	-21.4
					51 Cephei	U	4	-0.4044	6 46 39.40	-0.46	-1.26	+1.14	+0.76	39.58	6 45 24.53	- 1 15.05	-23.2
					R. P. L. 49	U	5	-0.1944	7 50 9.38	-0.23	-0.68	-1.14	+1.26	8.59	7 48 48.36	- 1 20.23	-22.7
		" 7	I. P. E.	"	483 Gr. 72	U	8	-0.0868	5 8 56.74	-0.26	-0.08	+1.14		57.54	5 7 45.78	- 1 11.76	
					8 Ursæ Minoris	L	3	+0.3492	6 11 19.04	+0.87	+0.18	+1.14	+0.49	21.72	6 9 54.85	- 1 26.87	-34.7
					51 Cephei	U	4	-0.4044	6 46 25.20	-1.07	-0.28	+1.14	+0.76	25.75	6 45 24.58	- 1 1.17	-34.1
					R. P. L. 49	U	5	-0.1944	7 49 55.54	-0.53	-0.15	-1.14	+1.26	54.98	7 48 48.45	- 1 6.53	-37.4
		" 9	"	"	483 Gr. 72	U	5	-0.0868	5 8 33.64	-0.27	+0.15	+1.14		34.66	5 7 45.67	- 0 48.99	
					8 Ursæ Minoris	L	4	+0.3492	6 10 57.90	+0.91	-0.33	+1.14	+0.49	60.11	6 9 54.99	- 1 5.12	-37.0
					51 Cephei	U	4	-0.4044	6 45 59.15	-1.12	+0.50	+1.14	+0.76	60.43	6 45 24.59	- 0 35.84	-38.9
					R. P. L. 49	U	5	-0.1944	7 49 33.20	-0.55	+0.27	-1.14	+1.26	33.04	7 48 48.62	- 0 44.42	-38.1
		" 10	"	"	483 Gr. 72	U	8	-0.0868	5 8 21.78	-0.16	+0.23	+1.15		23.00	5 7 45.61	- 0 37.39	
					8 Ursæ Minoris	L	4	+0.3492	6 10 49.28	+0.53	-0.51	+1.15	+0.49	50.94	6 9 55.08	- 0 55.86	-42.4
					51 Cephei	U	4	-0.4044	6 45 47.80	-0.65	+0.78	+1.15	+0.76	49.84	6 45 24.57	- 0 25.27	-40.6
					R. P. L. 49	U	2	-0.1944	7 49 20.70	-0.32	+0.42	-1.15	+1.26	20.91	7 48 48.70	- 0 32.21	-43.5

\* The numbers in brackets give the time by East Clock, corresponding to that by the West Clock in the line next above, as deduced from clock comparisons.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
HAZARIBAGH AND JUBBULPORE																	
HAZARIBAGH (Latitude $24^{\circ} 0'$ )																	
	1882								<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>h m s</i>	<i>m s</i>	<i>d</i>	
	Jan. 19	I. P. W.	E		$\delta$ Ursæ Minoris	L	4	+0.3559	6 9 60.60	-0.87	+0.51	-1.41		58.83	6 9 55.87	-0 2.96	
					51 Cephei	U	4	-0.4153	6 45 1.78	+1.07	-0.80	-1.41	+0.12	0.76	6 45 24.36	+0 23.60	-34.4
					815 Gr. 72	U	3	-0.2501	8 20 24.60	+0.65	-0.52	+1.41	+0.43	26.57	8 20 45.87	+0 19.30	-36.7
	" 20	"	"	"	$\delta$ Ursæ Minoris	L	4	+0.3559	6 9 41.80	-0.04	+0.60	-1.42		40.94	6 9 55.98	+0 15.04	
					51 Cephei	U	3	-0.4153	6 45 15.10	+0.05	-0.94	-1.42	+0.12	12.91	6 45 24.31	+0 11.40	+4.7
					815 Gr. 72	U	4	-0.2501	8 20 29.33	+0.03	-0.61	+1.42		30.17	8 20 45.87	+0 15.70	
					1927 "	L	1	+0.1392	8 35 13.30	-0.01	+0.17	+1.42	+0.05	14.93	8 35 26.31	+0 11.38	-11.1
	" 21	"	"	"	$\delta$ Ursæ Minoris	L	4	+0.3559	6 9 39.53	-1.06	+0.72	-1.41		37.78	6 9 56.13	+0 18.35	
					51 Cephei	U	3	-0.4153	6 45 7.63	+1.30	-1.13	-1.41	+0.12	6.51	6 45 24.23	+0 17.72	+0.8
					815 Gr. 72	U	4	-0.2501	8 20 24.55	+0.80	-0.73	+1.41		26.03	8 20 45.87	+0 19.84	
					1927 "	L	3	+0.1392	8 35 8.40	-0.40	+0.20	+1.41	+0.05	9.66	8 35 26.31	+0 16.65	-8.5
	" 24	I. P. E.	"	"	$\delta$ Ursæ Minoris	L	2	+0.3559	6 9 29.00	+1.03	+0.47	-1.38		29.12	6 9 56.69	+0 27.57	
					51 Cephei	U	3	-0.4153	6 44 48.57	-1.26	-0.73	-1.38	+0.12	45.32	6 45 23.77	+0 38.45	-14.1
					815 Gr. 72	U	4	-0.2501	8 20 9.48	-0.77	-0.48	+1.38		9.61	8 20 45.87	+0 36.26	
					1927 "	L	3	+0.1392	8 34 52.77	+0.39	+0.13	+1.38	+0.05	54.72	8 35 26.31	+0 31.59	-12.0
	" 25	"	"	"	$\delta$ Ursæ Minoris	L	5	+0.3559	6 9 24.18	+2.24	+0.92	-1.37		25.97	6 9 56.89	+0 30.92	
					51 Cephei	U	4	-0.4153	6 44 43.58	-2.74	-1.44	-1.37	+0.12	38.15	6 45 23.60	+0 45.45	-18.8
					815 Gr. 72	U	3	-0.2501	8 20 3.90	-1.68	-0.94	+1.37		2.65	8 20 45.87	+0 43.22	
					1927 "	L	2	+0.1392	8 34 48.80	+0.85	+0.26	+1.37	+0.05	51.33	8 35 26.31	+0 34.98	-21.2
	" 26	"	"	"	$\delta$ Ursæ Minoris	L	4	+0.3559	6 9 21.20	+2.97	+1.27	-1.39		24.05	6 9 57.07	+0 33.02	
					51 Cephei	U	4	-0.4153	6 44 38.28	-3.63	-1.99	-1.39	+0.12	31.39	6 45 23.45	+0 52.06	-24.7
					815 Gr. 72	U	3	-0.2501	8 19 59.23	-2.22	-1.29	+1.39		57.11	8 20 45.87	+0 48.76	
					1927 "	L	2	+0.1392	8 34 42.80	+1.12	+0.35	+1.39	+0.05	45.71	8 35 26.31	+0 40.60	-20.9
JUBBULPORE (Latitude $23^{\circ} 10'$ )																	
	1882																
	Jan. 19	I. P. W.	E		$\delta$ Ursæ Minoris	L	4	+0.3578	6 31 24.43	+1.75	+0.44	+1.41		28.03	6 9 55.87	-21 32.16	
			"		51 Cephei	U	4	-0.4182	7 6 56.63	-2.14	-0.69	+1.41	+0.12	55.33	6 45 24.36	-21 30.97	-1.5
			W		815 Gr. 72	U	3	-0.2521	8 22 32.73	-1.31	-0.49	+1.41		32.34	8 20 45.87	-1 46.47	
			"		1927 "	L	5	+0.1397	8 37 10.50	+0.66	+0.12	+1.41	+0.21	12.90	8 35 26.31	-1 46.59	-0.3
	" 20	"	"	"	$\delta$ Ursæ Minoris	L	3	+0.3578	6 11 21.90	+0.84	+0.44	+1.42		24.60	6 9 55.98	-1 28.62	
					51 Cephei	U	3	-0.4182	6 46 54.37	-1.02	-0.69	+1.42	+0.52	54.60	6 45 24.31	-1 30.29	+2.2
					815 Gr. 72	U	3	-0.2521	8 22 11.33	-0.63	-0.49	+1.42		11.63	8 20 45.87	-1 25.76	
					1927 "	L	3	+0.1397	8 36 51.13	+0.32	+0.12	+1.42	+0.21	53.20	8 35 26.31	-1 26.89	-2.9



TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Devia- tion Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	
									<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>h m s</i>	<i>m s</i>	<i>d</i>		
HAZARIBAGH AND JUBBULPORE	JUBBULPORE (Latitude $23^{\circ} 10'$ )	1882 Jan. 21	<i>I. P. W.</i>	<i>W</i>	$\delta$ Ursæ Minoris	<i>L</i>	4	+0.3578	6 11 1.55	-0.04	+0.26	+1.40		3.17	6 9 56.13	- 1 7.04		
					51 Cephei	<i>U</i>	3	-0.4182	6 46 33.43	+0.05	-0.41	+1.40	+0.52	34.99	6 45 24.23	- 1 10.76	+ 4.8	
					815 Gr. 72	<i>U</i>	4	-0.2521	8 21 53.50	+0.03	-0.29	+1.40		54.64	8 20 45.87	- 1 8.77		
					1927 "	<i>L</i>	5	+0.1397	8 36 32.50	-0.01	+0.07	+1.40	+0.21	34.17	8 35 26.31	- 1 7.86	+ 2.3	
		" 24	<i>I. P. E.</i>	"	$\delta$ Ursæ Minoris	<i>L</i>	3	+0.3578	6 10 7.30	+0.61	-0.54	+1.40		8.77	6 9 56.69	- 0 12.08		
					51 Cephei	<i>U</i>	4	-0.4182	6 45 34.65	-0.74	+0.85	+1.40	+0.52	36.68	6 45 23.77	- 0 12.91	+ 1.1	
					815 Gr. 72	<i>U</i>	4	-0.2521	8 20 53.68	-0.46	+0.62	+1.40		55.24	8 20 45.87	- 0 9.37		
					1927 "	<i>L</i>	5	+0.1397	8 35 35.54	+0.23	-0.15	+1.40	+0.21	37.23	8 35 26.31	- 0 10.92	- 3.9	
		" 25	"	"	$\delta$ Ursæ Minoris	<i>L</i>	4	+0.3578	6 9 47.95	+0.80	-0.40	+1.41		49.76	6 9 56.89	+ 0 7.13		
					51 Cephei	<i>U</i>	3	-0.4182	6 45 14.60	-0.98	+0.63	+1.41	+0.52	16.18	6 45 23.60	+ 0 7.42	- 0.4	
					815 Gr. 72	<i>U</i>	4	-0.2521	8 20 33.05	-0.60	+0.46	+1.41		34.32	8 20 45.87	+ 0 11.55		
					1927 "	<i>L</i>	5	+0.1397	8 35 16.12	+0.30	-0.11	+1.41	+0.21	17.93	8 35 26.31	+ 0 8.38	- 8.1	
	" 26	"	"	$\delta$ Ursæ Minoris	<i>L</i>	3	+0.3578	6 9 27.93	+0.23	-0.69	+1.40		28.87	6 9 57.07	+ 0 28.20			
				51 Cephei	<i>U</i>	3	-0.4182	6 44 54.10	-0.28	+1.10	+1.40	+0.52	56.84	6 45 23.45	+ 0 26.61	+ 2.1		
				815 Gr. 72	<i>U</i>	4	-0.2521	8 20 12.05	-0.17	+0.79	+1.40		14.07	8 20 45.87	+ 0 31.80			
				1927 "	<i>L</i>	5	+0.1397	8 34 55.12	+0.09	-0.19	+1.40	+0.21	56.53	8 35 26.31	+ 0 29.78	- 5.2		
	CALCUTTA AND HAZARIBAGH	CALCUTTA (Latitude $22^{\circ} 33'$ )	1882 Feb. 8	<i>I. P. W.</i>	<i>E</i>	$\lambda$ Ursæ Minoris	<i>L</i>	2	+1.1400	7 45 2.95	+3.19	-1.61	-1.48		3.05	7 40 38.72	- 4 24.33	
					"	815 Gr. 72	<i>U</i>	1	-0.2521	8 25 14.60	-0.74	+0.48	-1.48	+0.41	13.27	8 20 46.22	- 4 27.05	+ 2.0
					<i>W</i>	R. P. L. 72	<i>U</i>	5	-0.2218	10 0 45.02	-0.65	+0.42	+1.48		46.27	10 12 34.10	+11 47.83	
					"	2109 Gr. 72	<i>L</i>	5	+0.2737	10 10 26.08	+0.75	-0.32	+1.48	+0.04	28.03	10 22 16.79	+11 48.76	+ 1.9
" 9			"	<i>E</i>	$\lambda$ Ursæ Minoris	<i>L</i>	3	+1.1400	7 44 52.00	+1.84	-2.96	-1.48		49.40	7 40 39.23	- 4 10.17		
				"	815 Gr. 72	<i>U</i>	4	-0.2521	8 24 56.63	-0.43	+0.87	-1.48	+0.41	56.00	8 20 46.11	- 4 9.89	- 0.2	
				<i>W</i>	R. P. L. 72	<i>U</i>	4	-0.2218	10 0 40.53	-0.38	+0.77	+1.48		42.40	10 12 34.16	+11 51.76		
				"	2109 Gr. 72	<i>L</i>	4	+0.2737	10 10 19.73	+0.43	-0.59	+1.48	+0.04	21.09	10 22 16.71	+11 55.62	+ 7.8	
" 10			"	<i>E</i>	$\lambda$ Ursæ Minoris	<i>L</i>	3	+1.1400	7 44 36.97	+3.31	-2.65	-1.47		36.16	7 40 39.75	- 3 56.41		
				"	815 Gr. 72	<i>U</i>	4	-0.2521	8 24 40.08	-0.77	+0.78	-1.47	+0.41	39.03	8 20 46.00	- 3 53.03	- 2.4	
				<i>W</i>	R. P. L. 72	<i>U</i>	4	-0.2218	10 0 32.68	-0.68	+0.69	+1.47		34.16	10 12 34.22	+12 0.06		
				"	2109 Gr. 72	<i>L</i>	4	+0.2737	10 10 14.98	+0.78	-0.53	+1.47	+0.04	16.74	10 22 16.64	+11 59.90	- 0.3	
" 13			<i>I. P. E.</i>	<i>E</i>	$\lambda$ Ursæ Minoris	<i>L</i>	2	+1.1400	7 43 49.15	+0.74	-0.76	-1.49		50.62	7 40 41.11	- 3 9.51		
				"	815 Gr. 72	<i>U</i>	4	-0.2521	8 24 1.18	-0.17	+0.22	-1.49	+0.41	0.15	8 20 45.52	- 3 14.63	+ 3.7	
				<i>W</i>	R. P. L. 72	<i>U</i>	4	-0.2218	10 0 17.33	-0.15	+0.20	+1.49		18.87	10 12 34.41	+12 15.54		
				"	2109 Gr. 72	<i>L</i>	4	+0.2737	10 9 56.13	+0.17	-0.15	+1.49	+0.04	57.68	10 22 16.41	+12 18.73	+ 6.4	

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
CALCUTTA (Latitude $22^{\circ} 33'$ )																	
	1882	Feb. 14	I. P. E.	E	$\lambda$ Ursæ Minoris	L	1	+1'1400	$h\ m\ s$ 7 43 34.60	$s$ +0.86	$s$ -1.53	$s$ -1.48	$s$ 35.41	$h\ m\ s$ 7 40 41.50	$m\ s$ -2 53.91		
				"	815 Gr. 72	U	5	-0.2521	8 23 46.12	-0.20	+0.44	-1.48	+0.41	45.29	8 20 45.41	-2 59.88	+4.3
				W	R. P. L. 72	U	5	-0.2218	10 0 14.12	-0.18	+0.40	+1.48		15.82	10 12 34.48	+12 18.66	
				"	2109 Gr. 72	L	4	+0.2737	10 9 50.15	+0.20	-0.30	+1.48	+0.04	51.57	10 22 16.26	+12 24.69	+12.2
	" 16	"	"	E	$\lambda$ Ursæ Minoris	L	2	+1'1400	7 43 7.25	+0.37	-0.94	-1.50		8.18	7 40 42.32	-2 25.86	
				"	815 Gr. 72	U	4	-0.2521	8 23 15.33	-0.09	+0.27	-1.50	+0.41	15.42	8 20 45.30	-2 30.12	+3.1
				W	R. P. L. 72	U	4	-0.2218	9 59 59.80	-0.08	+0.24	+1.50		61.46	10 12 34.60	+12 33.14	
				"	2109 Gr. 72	L	4	+0.2737	10 9 40.25	+0.09	-0.19	+1.50	+0.04	41.69	10 22 16.19	+12 34.50	+2.7
HAZARIBAGH (Latitude $24^{\circ} 0'$ )																	
	1882	Feb. 8	I. P. E.	E	$\lambda$ Ursæ Minoris	L	2	+1'1283	7 57 27.65	+1.59	0.00	-1.40		27.84	7 40 38.72	-16 49.12	
				"	815 Gr. 72	U	3	-0.2501	8 37 3.77	-0.37	0.00	-1.40	+0.41	2.41	8 20 46.22	-16 16.19	-23.9
				W	R. P. L. 72	U	4	-0.2188	10 12 36.88	-0.33	0.00	+1.40		37.95	10 12 34.10	-0 3.85	
				"	2109 Gr. 72	L	3	+0.2713	10 22 29.37	+0.37	0.00	+1.40	+0.04	31.18	10 22 16.79	-0 14.39	-21.5
	" 9	"	"	E	$\lambda$ Ursæ Minoris	L	3	+1'1283	7 57 21.80	+2.57	+1.15	-1.40		24.12	7 40 39.23	-16 44.89	
				"	815 Gr. 72	U	4	-0.2501	8 36 47.40	-0.60	-0.33	-1.40	+0.41	45.48	8 20 46.11	-15 59.37	-33.0
				W	R. P. L. 72	U	3	-0.2188	10 12 30.47	-0.53	-0.29	+1.40		31.05	10 12 34.16	+0 3.11	
				"	2109 Gr. 72	L	3	+0.2713	10 22 24.73	+0.60	+0.23	+1.40	+0.04	27.00	10 22 16.71	-0 10.29	-27.4
	" 10	"	"	E	$\lambda$ Ursæ Minoris	L	3	+1'1283	7 57 4.17	+4.29	+1.43	-1.40		8.49	7 40 39.75	-16 28.74	
				"	815 Gr. 72	U	3	-0.2501	8 36 31.30	-1.00	-0.41	-1.40	+0.41	28.90	8 20 46.00	-15 42.90	-33.3
				W	R. P. L. 72	U	3	-0.2188	10 12 23.90	-0.88	-0.37	+1.40		24.05	10 12 34.22	+0 10.17	
				"	2109 Gr. 72	L	3	+0.2713	10 22 18.37	+1.01	+0.29	+1.40	+0.04	21.11	10 22 16.64	-0 4.47	-29.9
	" 13	I. P. W.	"	E	$\lambda$ Ursæ Minoris	L	3	+1'1283	7 56 33.13	+1.84	+0.38	-1.40		33.95	7 40 41.11	-15 52.84	
				"	815 Gr. 72	U	4	-0.2501	8 35 43.10	-0.43	-0.11	-1.40	+0.41	41.57	8 20 45.52	-14 56.05	-41.2
				W	R. P. L. 72	U	4	-0.2188	10 12 3.28	-0.38	-0.10	+1.40		4.20	10 12 34.41	+0 30.21	
				"	2109 Gr. 72	L	4	+0.2713	10 22 6.48	+0.43	+0.08	+1.40	+0.04	8.43	10 22 16.41	+0 7.98	-45.4
	" 14	"	"	E	$\lambda$ Ursæ Minoris	L	2	+1'1283	7 56 16.85	-0.25	+0.24	-1.40		15.44	7 40 41.50	-15 33.94	
				"	815 Gr. 72	U	4	-0.2501	8 35 28.93	+0.06	-0.07	-1.40	+0.41	27.93	8 20 45.41	-14 42.52	-37.3
				W	R. P. L. 72	U	4	-0.2188	10 11 58.30	+0.05	-0.06	+1.40		59.69	10 12 34.48	+0 34.79	
				"	2109 Gr. 72	L	4	+0.2713	10 22 2.80	-0.06	+0.05	+1.40	+0.04	4.23	10 22 16.26	+0 12.03	-46.5
	" 16	"	"	E	$\lambda$ Ursæ Minoris	L	3	+1'1283	7 55 48.67	-2.33	-0.67	-1.42		44.25	7 40 42.32	-15 1.93	
				"	815 Gr. 72	U	4	-0.2501	8 35 0.58	+0.54	+0.19	-1.42	+0.41	0.30	8 20 45.30	-14 15.00	-34.0
				W	R. P. L. 72	U	4	-0.2188	10 11 47.55	+0.48	+0.17	+1.42		49.62	10 12 34.60	+0 44.98	
				"	2109 Gr. 72	L	4	+0.2713	10 21 48.20	-0.55	-0.13	+1.42	+0.04	48.98	10 22 16.19	+0 27.21	-36.3

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Devia- tion Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deduced Value of Deviation Correction $a_1$
										Colli- mation	Level	Pen Equa- tion Q	Clock Rate				
JALPAIGURI AND HAZARIBAGH																	
JALPAIGURI (Latitude 26° 31')	1882	Feb. 25	I. P. W.	W	2209 Gr. 72	L	3	+0°36'47"	h m s 11 13 41.73	0°00	+0°04	-0°99		s 40°78	h m s 11 27 33.41	m s +13 52.63	
	1109 "				U	4	-0°30'72"	11 45 8.48	0°00	-0°05	-0°99	+0°10	7°54	11 59 3.98	+13 56.44	-5.7	
	Mar. 1	"	E	815 Gr. 72	U	4	-0°24'39"	8 20 29.58	+0°60	-0°31	+1°01		30°88	8 20 43.81	+0 12.93		
				1927 "	L	7	+0°13'74"	8 35 21.41	-0°30	+0°09	+1°01	+0°13	22°34	8 35 27.41	+0 5.07	-20.6	
				2209 "	L	4	+0°36'47"	11 13 25.33	-0°81	+0°27	-1°01		23°78	11 27 33.15	+14 9.37		
				1109 "	U	4	-0°30'72"	11 44 44.23	+0°72	-0°32	-1°01	+0°10	43°72	11 59 4.44	+14 20.72	-16.9	
	" 2	"	"	2209 Gr. 72	L	4	+0°36'47"	11 13 17.18	-1°12	+0°08	-1°01		15°13	11 27 33.09	+14 17.96		
				1109 "	U	4	-0°30'72"	11 44 36.83	+0°99	-0°09	-1°01	+0°10	36°82	11 59 4.55	+14 27.73	-14.5	
	" 3	I. P. E.	E	815 Gr. 72	U	4	-0°24'39"	8 20 6.70	-0°23	-0°04	+1°01		7°44	8 20 43.59	+0 36.15		
				1927 "	L	6	+0°13'74"	8 34 56.52	+0°12	+0°01	+1°01	+0°13	57°79	8 35 27.51	+0 29.72	-16.9	
				2209 "	L	3	+0°36'47"	11 13 9.37	+0°31	+0°04	-1°01		8°71	11 27 33.03	+14 24.32		
				1109 "	U	3	-0°30'72"	11 44 31.27	-0°27	-0°05	-1°01	+0°10	30°04	11 59 4.66	+14 34.62	-15.3	
	" 4	"	E	815 Gr. 72	U	5	-0°24'39"	8 19 54.18	-0°60	-0°10	+1°01		54°49	8 20 43.48	+0 48.99		
				1927 "	L	7	+0°13'74"	8 34 44.49	+0°30	+0°03	+1°01	+0°13	45°06	8 35 27.56	+0 41.60	-19.4	
				2209 "	L	3	+0°36'47"	11 13 6.00	+0°81	+0°09	-1°01		5°89	11 27 32.97	+14 27.08		
				1109 "	U	4	-0°30'72"	11 44 27.30	-0°72	-0°10	-1°01	+0°10	25°57	11 59 4.77	+14 39.20	-18.0	
	" 5	"	E	815 Gr. 72	U	4	-0°24'39"	8 19 40.20	-0°20	+0°09	+1°01		41°10	8 20 43.37	+1 2.27		
				1927 "	L	6	+0°13'74"	8 34 31.00	+0°10	-0°03	+1°01	+0°13	32°21	8 35 27.61	+0 55.40	-18.0	
				2209 "	L	4	+0°36'47"	11 12 60.20	+0°27	-0°08	-1°01		59°38	11 27 32.91	+14 33.53		
				1109 "	U	4	-0°30'72"	11 44 22.03	-0°24	+0°09	-1°01	+0°10	20°97	11 59 4.88	+14 43.91	-15.5	
HAZARIBAGH (Latitude 24° 0')	1882	Feb. 25	I. P. W.	W	815 Gr. 72	U	3	-0°25'01"	8 20 7.33	+0°11	+0°46	+1°36		9°26	8 20 44.28	+0 35.02	
	1927 "				L	4	+0°13'92"	8 35 3.48	-0°06	-0°13	+1°36	+0°05	4°70	8 35 27.14	+0 22.44	-32.3	
	2209 "				L	3	+0°36'14"	11 27 20.40	-0°15	-0°46	-1°36		18°43	11 27 33.41	+0 14.98		
	1109 "				U	4	-0°30'33"	11 58 16.55	+0°14	+0°54	-1°36	+0°10	25°97	11 59 3.98	+0 38.01	-34.6	
	Mar. 1	"	"	815 Gr. 72	U	3	-0°25'01"	8 19 42.73	+0°06	-0°20	+1°37		43°96	8 20 43.81	+0 59.85		
				1927 "	L	8	+0°13'92"	8 34 44.18	-0°03	+0°06	+1°37	+0°05	45°63	8 35 27.41	+0 41.78	-46.4	
				2209 "	L	3	+0°36'14"	11 27 3.13	-0°08	+0°20	-1°37		1°88	11 27 33.15	+0 31.27		
				1109 "	U	4	-0°30'33"	11 57 61.40	+0°07	-0°24	-1°37	+0°10	59°96	11 59 4.44	+1 4.48	-50.0	
	" 2	"	"	1109 Gr. 72	U	1	-0°30'33"	11 57 55.40	+0°51	-0°11	-1°37		54°43	11 59 4.55	+1 10.12	* -46.7	

\* This value of  $a_1$  has been deduced by the method of comparative-azimuth star observations; vide Volume IX, page 44.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deduced Value of Deviation Correction $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
JALPAIGURI AND HAZARIBAGH	HAZARIBAGH (Latitude $24^{\circ} 0'$ )	1882 Mar. 3	I. P. E.	W	815 Gr. 72	U	3	-0.2501	h m s 8 19 29.70	-1.59	-0.20	+1.37		29.28	8 20 43.59	+ 1 14.31	
					1927 "	L	7	+0.1392	8 34 31.16	+0.81	+0.06	+1.37	+0.05	33.45	8 35 27.51	+ 0 54.06	-52.0
					2209 "	L	3	+0.3614	11 26 46.53	+2.16	+0.20	-1.37		47.52	11 27 33.03	+ 0 45.51	
					1109 "	U	4	-0.3033	11 57 53.68	-1.92	-0.24	-1.37	+0.10	50.25	11 59 4.66	+ 1 14.41	-43.5
		" 4	"	"	815 Gr. 72	U	5	-0.2501	8 19 24.44	-1.59	+0.10	+1.36		24.31	8 20 43.48	+ 1 19.17	
					1927 "	L	5	+0.1392	8 34 26.14	+0.81	-0.03	+1.36	+0.05	28.33	8 35 27.56	+ 0 59.23	-51.2
					2209 "	L	3	+0.3614	11 26 42.53	+2.16	-0.10	-1.36		43.23	11 27 32.97	+ 0 49.74	
					1109 "	U	5	-0.3033	11 57 48.24	-1.92	+0.11	-1.36	+0.10	45.17	11 59 4.77	+ 1 19.60	-44.9
		" 5	"	"	815 Gr. 72	U	5	-0.2501	8 19 20.58	-2.22	-0.27	+1.38		19.47	8 20 43.37	+ 1 23.90	
					1927 "	L	8	+0.1392	8 34 22.05	+1.12	+0.07	+1.38	+0.05	24.67	8 35 27.61	+ 1 2.94	-53.8
					2209 "	L	4	+0.3614	11 26 36.55	+2.81	+0.27	-1.38		38.25	11 27 32.91	+ 0 54.66	
					1109 "	U	4	-0.3033	11 57 44.80	-2.67	-0.32	-1.38	+0.10	40.53	11 59 4.88	+ 1 24.35	-44.7
JALPAIGURI AND CALCUTTA	JALPAIGURI (Latitude $26^{\circ} 31'$ )	1882 Mar. 17	I. P. E.	E	4275 W. C.	U	4	-0.2138	10 12 51.65	-0.98	-0.08	+1.01		52.60	10 12 31.30	- 0 21.30	
					2109 Gr. 72	L	4	+0.2666	10 22 34.58	+1.12	+0.05	-1.01	+0.08	34.82	10 22 17.19	- 0 17.63	+ 7.6
					1191 "	U	5	-0.1833	12 48 35.02	-0.85	-0.07	+1.01	+1.30	36.41	12 48 18.20	- 0 18.21	- 3.2
					1192 "	U	5	-0.1833	12 48 43.12	-0.85	-0.07	+1.01	+1.30	44.51	12 48 26.02	- 0 18.49	- 2.5
					86 "	L	4	+0.2733	12 52 57.63	+1.15	+0.07	+1.01	+1.33	61.19	12 52 41.54	- 0 19.65	
		" 19	"	"	4275 W. C.	U	4	-0.2138	10 12 28.35	-0.03	+0.51	+1.02		29.85	10 12 31.06	+ 0 1.21	
					2109 Gr. 72	L	4	+0.2666	10 22 7.90	+0.03	-0.35	-1.02	+0.08	6.64	10 22 17.43	+ 0 10.79	+19.9
					1191 "	U	5	-0.1833	12 48 10.88	-0.02	+0.45	+1.02	+1.30	13.63	12 48 18.23	+ 0 4.60	+ 9.4
					1192 "	U	5	-0.1833	12 48 18.68	-0.02	+0.45	+1.02	+1.30	21.43	12 48 26.05	+ 0 4.62	+ 9.4
					86 "	L	4	+0.2733	12 52 30.65	+0.03	-0.43	+1.02	+1.33	32.60	12 52 41.50	+ 0 8.90	
		" 22	"	"	$\mu$ Hydre	U	15	+0.0159	10 19 44.29	-0.08	+0.03	-1.01		43.23	10 20 25.77	+ 0 42.54	
					$\alpha$ Ursæ Majoris	U	15	-0.0284	10 55 46.74	-0.17	+0.07	+1.01	+0.30	47.95	10 56 30.33	+ 0 42.38	+ 3.6
					1191 Gr. 72	U	5	-0.1833	12 47 34.80	-0.78	+0.22	+1.01	+1.25	36.50	12 48 18.28	+ 0 41.78	+ 4.6
					1192 "	U	5	-0.1833	12 47 42.76	-0.78	+0.22	+1.01	+1.25	44.46	12 48 26.09	+ 0 41.63	+ 4.9
					86 "	L	5	+0.2733	12 51 54.44	+1.06	-0.21	+1.01	+1.27	57.57	12 52 41.45	+ 0 43.88	
		Apr. 4	I. P. W.	"	$\delta$ Crateris	U	15	+0.0151	11 14 10.59	+0.37	+0.09	+1.29		12.34	11 13 29.35	- 0 42.99	
					$\lambda$ Draconis	U	8	-0.0452	11 25 11.89	+0.11	+0.23	-1.29	+0.07	11.01	11 24 27.81	- 0 43.20	+ 3.5
					1191 Gr. 72	U	3	-0.1833	12 49 4.40	+0.35	+0.57	-1.29	+0.67	4.70	12 48 18.46	- 0 46.24	+20.0
					1192 "	U	3	-0.1833	12 49 12.27	+0.35	+0.57	-1.29	+0.67	12.57	12 48 26.27	- 0 46.30	+20.0
					Polaris	L	2	+0.8852	13 15 25.00	-1.57	-2.04	-1.29	+0.72	20.82	13 14 55.84	- 0 24.98	

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$
										Collimation	Level	Pen Equation Q	Clock Rate				
JALPAIGURI (Latitude $26^{\circ} 31'$ )	1882 Apr. 5	I. P. W.	E	$\alpha$ Ursæ Majoris	U	12	-0.0284	$h\ m\ s$ 10 56 58.18	+0.07	+0.21	+1.32		59.78	10 56 30.10	- 0 29.68		
				$\delta$ Crateris	U	15	+0.0151	11 13 56.80	+0.35	+0.09	+1.32	+0.10	58.66	11 13 29.35	- 0 29.31	+ 8.6	
				$\lambda$ Draconis	U	9	-0.0452	11 24 58.61	+0.10	+0.25	-1.32	+0.17	57.81	11 24 27.78	- 0 30.03	+ 11.9	
				1191 Gr. 72	U	5	-0.1833	12 48 50.98	+0.33	+0.62	-1.32	+0.67	51.28	12 48 18.48	- 0 32.80	+ 19.6	
				1192 "	U	5	-0.1833	12 48 59.00	+0.33	+0.62	-1.32	+0.67	59.30	12 48 26.29	- 0 33.01	+ 20.1	
				86 "	L	2	+0.2733	12 53 6.65	-0.44	-0.59	-1.32	+0.69	4.99	12 52 41.16	- 0 23.83		
				$\alpha$ Ursæ Majoris	U	10	-0.0284	10 56 45.51	+0.02	+0.14	+1.32		46.99	10 56 30.08	- 0 16.91		
				$\delta$ Crateris	U	15	+0.0151	11 13 44.08	+0.01	+0.06	+1.32	+0.10	45.57	11 13 29.35	- 0 16.22	+ 16.0	
	" 6	"	"	$\lambda$ Draconis	U	6	-0.0452	11 24 45.82	+0.03	+0.17	-1.32	+0.17	44.87	11 24 27.76	- 0 17.11	+ 14.8	
				W Polaris	L	2	+0.8852	13 13 52.00 (* 13 15 0.34)	-0.39	-1.46	+1.32	+0.83	52.30 (* 0.64)	13 14 56.02	- 0 4.62	+ 13.4	
CALCUTTA (Latitude $22^{\circ} 33'$ )	1882 Mar. 17	I. P. W.	E	4275 W. C.	U	4	-0.2219	10 13 55.33	+0.78	-0.58	+1.06		56.59	10 12 31.30	- 1 25.29		
				2109 Gr. 72	L	3	+0.2735	10 24 38.50	-0.89	+0.45	-1.06	+0.09	37.09	10 22 17.19	- 2 19.90	- 110.3	
				W 1191 "	U	3	-0.1910	12 48 33.17	+0.67	-0.52	-1.06		32.26	12 48 18.20	- 0 14.06	- 111.5	
				" 1192 "	U	3	-0.1910	12 48 41.40	+0.67	-0.52	-1.06	0.00	40.49	12 48 26.02	- 0 14.47	- 110.7	
				86 "	L	3	+0.2803	12 53 49.63	-0.91	+0.46	-1.06	+0.01	48.13	12 52 41.54	- 1 6.59		
	" 19	"	E	4275 W. C.	U	3	-0.2219	10 13 46.73	+1.08	-0.34	+1.09		48.56	10 12 31.06	- 1 17.50		
				2109 Gr. 72	L	3	+0.2735	10 23 53.70	-1.24	+0.26	-1.09	+0.09	51.72	10 22 17.43	- 1 34.29	- 33.9	
				W 1191 "	U	7	-0.1910	12 48 41.41	+0.93	-0.30	-1.09		40.95	12 48 18.23	- 0 22.72	- 37.1	
				" 1192 "	U	7	-0.1910	12 48 49.00	+0.93	-0.30	-1.09	0.00	48.54	12 48 26.05	- 0 22.49	- 37.6	
				86 "	L	7	+0.2803	12 53 23.76	-1.27	+0.27	-1.09	+0.01	21.68	12 52 41.50	- 0 40.18		
	" 22	"	E	4275 W. C.	U	3	-0.2211	10 13 11.47	+1.35	-0.13	+1.10		13.79	10 12 30.70	- 0 43.09		
				2109 Gr. 72	L	2	+0.2735	10 23 16.05	-1.55	+0.10	-1.10	+0.09	13.59	10 22 17.79	- 0 55.80	- 25.7	
				W 1191 "	U	7	-0.1910	12 48 32.81	+1.17	-0.11	-1.10		32.77	12 48 18.28	- 0 14.49	- 27.2	
				" 1192 "	U	7	-0.1910	12 48 40.50	+1.17	-0.11	-1.10	0.00	40.46	12 48 26.09	- 0 14.37	- 27.4	
				86 "	L	4	+0.2803	12 53 11.33	-1.59	+0.10	-1.10	+0.01	8.75	12 52 41.45	- 0 27.30		
	Apr. 4	I. P. E.	"	1191 Gr. 72	U	5	-0.1910	12 49 6.24	-1.26	-0.13	+1.04		5.89	12 48 18.46	- 0 47.43	+ 16.9	
				1192 "	U	5	-0.1910	12 49 13.40	-1.26	-0.13	+1.04	0.00	13.05	12 48 26.27	- 0 46.78	+ 15.5	
				86 "	L	4	+0.2803	12 53 17.80	+1.71	+0.12	+1.04	+0.01	20.68	12 52 41.18	- 0 39.50		
	" 5	"	"	1191 Gr. 72	U	9	-0.1910	12 49 4.77	-1.04	-0.15	+1.12		4.70	12 48 18.48	- 0 46.22		
				1192 "	U	9	-0.1910	12 49 12.53	-1.04	-0.15	+1.12	0.00	12.46	12 48 26.29	- 0 46.17		
				86 "	L	6	+0.2803	12 53 12.25	+1.42	+0.13	+1.12	+0.01	14.93	12 52 41.16	- 0 33.77	+ 26.4	
				Polaris	L	1	+0.9120	13 15 9.30	+4.70	+0.50	+1.12	+0.05	15.67	13 14 55.92	- 0 19.75	+ 24.1	
	" 6	"	"	1191 Gr. 72	U	8	-0.1910	12 49 2.00	-1.41	-0.45	+1.15		1.29	12 48 18.49	- 0 42.80	+ 27.4	
				1192 "	U	8	-0.1910	12 49 9.78	-1.41	-0.45	+1.15	0.00	9.07	12 48 26.30	- 0 42.77	+ 27.4	
				Polaris	L	2	+0.9120	13 14 59.50	+6.36	+1.52	+1.15	+0.05	68.58	13 14 56.02	- 0 12.56		

\* The numbers in brackets give the time by East Clock, corresponding to that by West Clock in the line next above, as deduced from clock comparisons.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q -$	$Q +$
1881 November 25	$s$ 10' 25	$s$ 48' 55	$s$ 1' 90	$s$ 5' 86	$s$ 28' 09	$s$ 9' 56	$s$ 37' 06	$s$ 40' 10
	' 22	' 55	' 89	' 84	' 09	' 56	' 04	' 11
	' 22	' 55	' 90	' 85	' 11	' 52	' 05	' 10
	' 21	' 54	' 88	' 81	' 12	' 52	' 05	' 10
	' 22	' 55	' 90	' 85	' 16	' 52	' 05	' 10
	' 22	' 56	' 89	' 84	' 15	' 53	' 04	' 11
	' 22	' 60	' 90	' 86	' 16	' 55	' 05	' 10
	' 21	' 59	' 90	' 84	' 15	' 54	' 04	' 11
	' 21	' 60	' 91	' 86	' 17	' 55	' 04	' 10
	' 20	' 60	' 89	' 84	' 15	' 56	' 06	' 10
	' 18	' 60	' 90	' 84	' 15	' 55	' 07	' 10
	' 19	' 58	' 89	' 81	' 11	' 53	' 03	' 11
	' 16	' 60	' 89	' 83	' 11	' 52	' 05	' 10
	' 18	' 59	' 88	' 81	' 10	' 56	' 04	' 10
	' 17	' 60	' 90	' 85	' 11	' 55	' 05	' 10
	' 20	' 56	' 89	' 82	' 13	' 59	' 03	' 12
	' 15	' 56	' 90	' 85	' 19	' 60	' 04	' 10
	' 17	' 55	' 87	' 85	' 20	' 59	' 02	' 12
	' 15	' 55	' 91	' 85	' 19	' 55	' 04	' 10
	' 17	' 55	' 89	' 84	' 19	' 55	' 03	' 10
Corresponding Mean Observed Times at	$h\ m\ s$ 2 47 0	$h\ m\ s$ 2 48 35	$h\ m\ s$ 5 5 11	$h\ m\ s$ 5 6 15	$h\ m\ s$ 4 31 17	$h\ m\ s$ 4 32 55	$h\ m\ s$ 6 24 47	$h\ m\ s$ 6 23 50
	$s$ +0' 195	$s$ +0' 573	$s$ +0' 893	$s$ +0' 840	$s$ +0' 142	$s$ +0' 550	$s$ +0' 044	$s$ +0' 104
	$h\ m\ s$ 2 30 20	$h\ m\ s$ 2 31 58	$h\ m\ s$ 4 48 33	$h\ m\ s$ 4 49 41	$h\ m\ s$ 4 14 38	$h\ m\ s$ 4 16 19	$h\ m\ s$ 6 8 13	$h\ m\ s$ 6 7 12
	$s$ +0' 195	$s$ +0' 573			$s$ +0' 142	$s$ +0' 550		
Difference	$m\ s$ 16 39' 805	$m\ s$ 16 36' 427	$m\ s$ 16 38' 893	$m\ s$ 16 34' 840	$m\ s$ 16 38' 858	$m\ s$ 16 35' 450	$m\ s$ 16 34' 044	$m\ s$ 16 38' 104

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$											
	At W		At E		At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1881 November 28	<i>s</i> 35' 20	<i>s</i> 32' 52	<i>s</i> 28' 86	<i>s</i> 57' 50	<i>s</i> 7' 15	<i>s</i> 30' 60	<i>s</i> 36' 46	<i>s</i> 25' 80	<i>s</i> 13' 11	<i>s</i> 31' 50	<i>s</i> 32' 60	<i>s</i> 25' 94
	' 20	' 55	' 89	' 55	' 18	' 60	' 48	' 84	' 12	' 54	' 56	' 90
	' 20	' 56	' 88	' 54	' 19	' 60	' 49	' 84	' 11	' 50	' 60	' 91
	' 31	' 57	' 90	' 55	' 20	' 61	' 49	' 84	' 15	' 50	' 56	' 88
	' 20	' 52	' 85	' 56	' 21	' 60	' 48	' 81	' 13	' 50	' 59	' 91
	' 21	' 54	' 88	' 56	' 23	' 60	' 50	' 81	' 12	' 50	' 59	' 89
	' 20	' 52	' 85	' 55	' 24	' 60	' 48	' 82	' 09	' 50	' 60	' 90
	' 20	' 53	' 86	' 56	' 24	' 63	' 49	' 84	' 09	' 49	' 59	' 90
	' 20	' 54	' 85	' 52	' 22	' 61	' 49	' 80	' 05	' 50	' 61	' 94
	' 19	' 50	' 86	' 52	' 24	' 61	' 50	' 85	' 08	' 50	' 59	' 91
	' 19	' 53	' 85	' 51	' 20	' 64	' 48	' 80	' 05	' 50	' 60	' 91
	' 19	' 54	' 89	' 51	' 20	' 66	' 50	' 83	' 06	' 51	' 60	' 90
	' 15	' 53	' 85	' 50	' 18	' 64	' 49	' 81	' 03	' 51	' 60	' 93
	' 15	' 55	' 85	' 53	' 18	' 63	' 50	' 84	' 06	' 50	' 57	' 91
	' 12	' 51	' 84	' 52	' 20	' 60	' 48	' 84	' 03	' 51	' 60	' 94
	' 13	' 53	' 84	' 54	' 21	' 61	' 50	' 85	' 05	' 50	' 60	' 93
	' 13	' 53	' 82	' 50	' 21	' 61	' 50	' 84	' 00	' 50	' 60	' 94
	' 15	' 55	' 85	' 51	' 21	' 63	' 52	' 85	' 00	' 49	' 59	' 93
	' 10	' 54	' 86	' 50	' 20	' 67	' 51	' 84	' 00	' 50	' 60	' 93
	' 11	' 52	' 90	' 52	' 20	' 66	' 51	' 85	' 01	' 51	' 59	' 91
Corresponding Mean Observed Times at	<i>h m s</i> 2 41 44	<i>h m s</i> 2 42 38	<i>h m s</i> 2 44 38	<i>h m s</i> 2 46 7	<i>h m s</i> 4 31 15	<i>h m s</i> 4 32 35	<i>h m s</i> 4 33 46	<i>h m s</i> 4 34 35	<i>h m s</i> 6 7 20	<i>h m s</i> 6 8 35	<i>h m s</i> 6 9 42	<i>h m s</i> 6 10 35
	<i>s</i> +0' 172	<i>s</i> +0' 534	<i>s</i> +0' 862	<i>s</i> +0' 528	<i>s</i> +0' 205	<i>s</i> +0' 621	<i>s</i> +0' 493	<i>s</i> +0' 830	<i>s</i> +0' 067	<i>s</i> +0' 503	<i>s</i> +0' 592	<i>s</i> +0' 916
Difference	<i>m s</i> 15 58' 828	<i>m s</i> 15 55' 466	<i>m s</i> 15 58' 862	<i>m s</i> 15 55' 528	<i>m s</i> 15 57' 795	<i>m s</i> 15 54' 379	<i>m s</i> 15 54' 493	<i>m s</i> 15 57' 830	<i>m s</i> 15 56' 933	<i>m s</i> 15 53' 497	<i>m s</i> 15 53' 592	<i>m s</i> 15 56' 916

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q											
	At W		At E		At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1881 November 29	s 16'61	s 22'96	s 47'06	s 46'55	s 20'60	s 17'02	s 35'02	s 45'40	s 18'58	s 54'92	s 15'13	s 32'46
	'63	'99	'06	'54	'62	'06	'05	'40	'55	'95	'12	'45
	'64	'98	'06	'55	'62	'02	'03	'40	'55	'95	'13	'46
	'64	'98	'06	'53	'60	'01	'04	'40	'56	'94	'11	'45
	'68	'99	'08	'55	'61	'02	'04	'40	'55	'90	'12	'49
	'69	'99	'05	'54	'62	'01	'07	'39	'55	'91	'10	'49
	'70	'96	'10	'55	'66	'03	'05	'40	'55	'92	'12	'49
	'69	'99	'06	'52	'69	'02	'02	'39	'55	'91	'11	'46
	'65	'99	'07	'53	'70	'03	'05	'40	'55	'92	'12	'48
	'63	23'00	'06	'53	'70	'00	'03	'40	'50	'94	'10	'46
	'64	'03	'09	'55	'70	'02	'05	'40	'51	'96	'12	'46
	'65	'02	'06	'53	'73	'00	'03	'40	'53	'96	'11	'48
	'64	'05	'06	'53	'70	'01	'04	'40	'51	'96	'14	'47
	'64	'05	'06	'53	'71	'00	'03	'39	'50	'93	'13	'49
	'61	'05	'06	'55	'71	'01	'03	'39	'51	'95	'13	'47
	'64	'04	'05	'57	'70	'00	'05	'40	'53	'95	'13	'49
	'65	'06	'06	'56	'69	'03	'06	'39	'55	'96	'15	'48
	'65	'05	'07	'56	'69	'01	'07	'40	'60	'97	'11	'49
	'65	'06	'10	'58	'69	'02	'07	'40	'60	'99	'12	'45
	'64	'05	'05	'56	'69	'02	'04	'40	'60	'99	'10	'48
Corresponding Mean Observed Times at	h m s 2 41 12	h m s 2 42 15	h m s 2 43 57	h m s 2 44 56	h m s 4 31 15	h m s 4 32 8	h m s 4 33 45	h m s 4 34 55	h m s 6 8 12	h m s 6 8 45	h m s 6 10 25	h m s 6 11 42
	s +0'649	s +0'015	s +0'066	s +0'546	s +0'672	s +0'017	s +0'044	s +0'398	s +0'547	s +0'944	s +0'120	s +0'473
	h m s 2 25 26	h m s 2 26 33	h m s 2 28 15	h m s 2 29 11	h m s 4 15 30	h m s 4 16 27	h m s 4 18 4	h m s 4 19 11	h m s 5 52 28	h m s 5 53 4	h m s 5 54 45	h m s 5 55 59
	s +0'649	s +0'015	s .	s +0'672	s +0'017	s +0'017	s +0'044	s +0'398	s +0'547	s +0'944	s +0'120	s +0'473
Difference	m s 15 45'351	m s 15 41'985	m s 15 42'066	m s 15 45'546	m s 15 44'328	m s 15 40'983	m s 15 41'044	m s 15 44'398	m s 15 43'453	m s 15 40'056	m s 15 40'120	m s 15 43'473



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q											
	At W		At E		At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1881 November 30	s 49' 11	s 32' 50	s 13' 61	s 51' 95	s 54' 14	s 56' 55	s 31' 55	s 35' 92	s 6' 02	s 7' 41	s 34' 65	s 37' 02
	' 11	' 50	' 60	' 96	' 12	' 56	' 55	' 92	' 01	' 44	' 66	' 01
	' 10	' 50	' 63	' 95	' 13	' 55	' 55	' 93	' 04	' 43	' 66	' 02
	' 12	' 50	' 61	' 96	' 11	' 55	' 56	' 91	' 03	' 43	' 67	' 01
	' 11	' 50	' 61	' 95	' 11	' 54	' 55	' 93	' 05	' 40	' 64	' 01
	' 11	' 50	' 60	' 96	' 09	' 54	' 56	' 91	' 04	' 41	' 66	' 01
	' 10	' 50	' 63	' 93	' 10	' 50	' 55	' 92	' 04	' 40	' 65	' 02
	' 10	' 49	' 60	' 97	' 12	' 50	' 55	' 91	' 02	' 40	' 66	' 01
	' 11	' 51	' 63	' 96	' 13	' 46	' 55	' 92	' 02	' 40	' 65	' 01
	' 11	' 50	' 60	' 97	' 14	' 46	' 56	' 91	' 02	' 39	' 67	' 00
	' 10	' 50	' 61	' 95	' 14	' 46	' 55	' 92	' 03	' 37	' 65	' 01
	' 10	' 50	' 60	' 98	' 18	' 50	' 56	' 91	' 02	' 37	' 67	' 00
	' 09	' 51	' 60	' 96	' 16	' 48	' 55	' 94	' 04	' 39	' 65	' 01
	' 09	' 51	' 59	' 99	' 18	' 50	' 55	' 92	' 01	' 39	' 65	' 00
	' 06	' 46	' 62	' 96	' 15	' 50	' 54	' 93	' 01	' 40	' 66	' 00
	' 06	' 50	' 61	' 99	' 15	' 51	' 57	' 91	' 01	' 40	' 65	' 00
	' 04	' 49	' 60	' 95	' 16	' 52	' 53	' 92	' 01	' 40	' 64	' 01
	' 03	' 46	' 61	' 96	' 16	' 56	' 54	' 91	' 01	' 41	' 65	' 00
	' 02	' 45	' 60	' 94	' 17	' 55	' 54	' 92	' 01	' 41	' 63	' 00
	' 02	' 45	' 62	' 95	' 19	' 53	' 54	' 91	' 00	' 45	' 65	' 01
Corresponding Mean Observed Times at	h m s 2 41 31	h m s 2 42 11	h m s 2 44 23	h m s 2 45 1	h m s 4 30 35	h m s 4 31 34	h m s 4 33 41	h m s 4 34 45	h m s 6 4 46	h m s 6 5 44	h m s 6 7 44	h m s 6 8 47
			s + 0' 609	s + 0' 960			s + 0' 550	s + 0' 919			s + 0' 654	s + 0' 008
	h m s 2 25 59	h m s 2 26 42	h m s 2 28 55	h m s 2 29 30	h m s 4 15 4	h m s 4 16 6	h m s 4 18 14	h m s 4 19 15	h m s 5 49 16	h m s 5 50 17	h m s 5 52 18	h m s 5 53 17
	s + 0' 085	s + 0' 492			s + 0' 142	s + 0' 516			s + 0' 022	s + 0' 405		
Difference	m s 15 31' 915	m s 15 28' 508	m s 15 28' 609	m s 15 31' 960	m s 15 30' 858	m s 15 27' 484	m s 15 27' 550	m s 15 30' 919	m s 15 29' 978	m s 15 26' 595	m s 15 26' 654	m s 15 30' 008

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q											
	At W		At E		At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1881 December 1	s 46.66	s 2.08	s 56.93	s 56.30	s 47.80	s 24.29	s 53.86	s 47.20	s 23.76	s 25.20	s 30.94	s 31.29
	.66	.07	.96	.31	.80	.30	.89	.22	.71	.20	.92	.27
	.65	.09	.95	.29	.81	.29	.87	.20	.73	.20	.95	.30
	.66	.10	.95	.30	.81	.26	.89	.22	.72	.20	.90	.29
	.65	.11	.95	.31	.83	.21	.87	.20	.75	.20	.95	.29
	.64	.11	.99	.31	.83	.20	.89	.21	.71	.20	.93	.27
	.65	.11	.98	.31	.85	.20	.87	.20	.70	.20	.95	.27
	.67	.08	.92	.32	.86	.20	.89	.21	.70	.20	.92	.25
	.67	.11	.95	.33	.85	.22	.89	.20	.70	.18	.95	.29
	.70	.10	.99	.31	.82	.20	.89	.21	.69	.19	.94	.25
	.70	.11	.98	.32	.82	.20	.89	.19	.70	.20	.95	.29
	.72	.11	.99	.30	.80	.20	.89	.24	.70	.18	.91	.26
	.70	.11	.99	.32	.80	.21	.89	.21	.70	.16	.92	.30
	.72	.11	.98	.30	.80	.21	.90	.22	.70	.18	.91	.26
	.71	.11	.98	.30	.80	.22	.89	.23	.70	.11	.95	.30
	.73	.11	.98	.30	.80	.24	.90	.24	.70	.14	.92	.28
	.71	.14	.97	.33	.79	.24	.89	.24	.70	.13	.95	.29
	.72	.13	.98	.30	.79	.25	.90	.23	.71	.15	.94	.28
	.73	.15	.98	.32	.80	.25	.88	.24	.77	.11	.94	.30
	.73	.13	.98	.32	.79	.25	.90	.23	.78	.13	.92	.28
Corresponding Mean Observed Times at	h m s 2 41 15	h m s 2 42 27	h m s 2 44 6	h m s 2 45 6	h m s 4 31 15	h m s 4 31 48	h m s 4 34 3	h m s 4 34 57	h m s 6 4 50	h m s 6 5 48	h m s 6 7 40	h m s 6 8 41
	s +0.689	s +0.109	s +0.969	s +0.310	s +0.813	s +0.232	s +0.887	s +0.217	s +0.717	s +0.173	s +0.933	s +0.281
Difference	m s 15 18.311	m s 15 14.891	m s 15 14.969	m s 15 18.310	m s 15 17.187	m s 15 13.768	m s 15 13.887	m s 15 17.217	m s 15 16.283	m s 15 12.827	m s 15 12.933	m s 15 16.281

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q											
	At W		At E		At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1881 December 2	s	s	s	s	s	s	s	s	s	s	s	s
	53' 94	35' 35	30' 75	40' 15	43' 99	10' 32	37' 70	38' 04	2' 98	14' 30	38' 65	39' 09
	'90	'35	'80	'13	'97	'31	'69	'01	3' 00	'30	'69	'06
	'90	'34	'79	'15	'99	'32	'70	'03	3' 00	'32	'68	'06
	'90	'33	'80	'14	'97	'33	'68	'03	3' 00	'34	'70	'05
	'89	'31	'77	'15	'99	'35	'71	'03	3' 00	'34	'69	'05
	'89	'30	'80	'14	'98	'35	'69	'02	3' 00	'34	'70	'05
	'89	'30	'78	'15	'97	'39	'70	'05	3' 00	'35	'69	'08
	'90	'30	'79	'15	'96	'39	'68	'01	3' 00	'35	'70	'05
	'90	'29	'78	'14	'96	'39	'70	'02	2' 99	'37	'69	'09
	'92	'27	'80	'14	'97	'40	'69	'02	2' 99	'39	'70	'07
	'90	'25	'75	'14	'99	'40	'70	'06	2' 99	'40	'70	'09
	'92	'24	'79	'11	'99	'40	'70	'04	3' 00	'40	'71	'08
	'91	'24	'76	'14	'99	'40	'70	'05	3' 00	'39	'68	'08
	'93	'24	'79	'13	'96	'41	'69	'04	3' 00	'39	'70	'07
	'91	'25	'79	'13	'93	'40	'70	'06	3' 00	'40	'69	'09
	'91	'25	'80	'15	'95	'38	'69	'03	3' 01	'40	'71	'06
	'90	'29	'78	'14	'96	'38	'70	'05	3' 00	'41	'70	'08
	'91	'30	'80	'14	'95	'40	'68	'04	3' 01	'40	'70	'07
	'90	'30	'80	'14	'98	'39	'70	'05	3' 00	'40	'70	'10
	'90	'31	'80	'13	'98	'36	'68	'03	3' 00	'40	'70	'09
Corresponding Mean Observed Times at	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>
	2 41 8	2 41 46	2 43 40	2 45 50	4 29 57	4 31 20	4 32 47	4 33 48	6 5 15	6 6 23	6 9 48	6 8 49
E			s	s			s	s			s	s
			+0'786	+0'140			+0'694	+0'036			+0'694	+0'073
W	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>	<i>h m s</i>
	2 26 3	2 26 45	2 28 40	2 30 46	4 14 53	4 16 20	4 17 48	4 18 45	5 50 12	5 51 24	5 54 50	5 53 47
	s	s			s	s			s	s		
	+0'906	+0'291			+0'972	+0'374			+0'999	+0'370		
Difference	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>
	15 4'094	15 0'709	15 0'786	15 4'140	15 3'028	14 59'626	14 59'694	15 3'036	15 2'001	14 58'630	14 58'694	15 2'073

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1881 December 12	s 1.65	s 34.19	s 31.51	s 28.94	s 48.75	s 3.14	s 53.47	s 28.86
	.67	.19	.51	.96	.77	.18	.47	.84
	.66	.20	.53	.94	.73	.18	.45	.83
	.67	.18	.52	.93	.76	.19	.46	.85
	.63	.20	.51	.95	.78	.19	.46	.82
	.70	.15	.52	.95	.80	.18	.46	.85
	.65	.12	.54	.93	.76	.20	.43	.85
	.64	.14	.51	.94	.74	.19	.45	.85
	.63	.11	.50	.96	.74	.16	.45	.81
	.66	.10	.52	.94	.74	.19	.44	.85
	.70	.10	.50	.96	.77	.20	.41	.83
	.61	.10	.53	.94	.78	.23	.44	.84
	.65	.10	.56	.93	.80	.17	.44	.82
	.65	.10	.55	.91	.80	.21	.43	.85
	.64	.18	.52	.95	.81	.16	.46	.85
	.64	.14	.54	.95	.80	.16	.44	.85
	.64	.11	.52	.94	.82	.14	.45	.83
	.68	.20	.57	.93	.83	.13	.44	.86
	.70	.20	.53	.94	.88	.17	.45	.82
	.65	.21	.56	.96	.82	.14	.45	.84
Corresponding Mean Observed Times at	E h m s 4 52 13	E h m s 4 54 42	E h m s 4 56 41	E h m s 4 53 38	E h m s 5 36 59	E h m s 5 40 10	E h m s 5 41 3	E h m s 5 38 38
	W h m s 4 44 11	W h m s 4 46 44	W h m s 4 48 41	W h m s 4 45 40	W h m s 5 28 57	W h m s 5 32 12	W h m s 5 33 3	W h m s 5 30 40
	s +0.656	s +0.151	s +0.528	s +0.943	s +0.784	s +0.176	s +0.448	s +0.840
Difference	m s 8 1.344	m s 7 57.849	m s 8 0.528	m s 7 58.943	m s 8 1.216	m s 7 57.824	m s 8 0.448	m s 7 58.840

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1881 December 13	$s$ 36'71	$s$ 35'16	$s$ 27'50	$s$ 56'89	$s$ 2'93	$s$ 25'24	$s$ 1'32	$s$ 56'74
	'72	'19	'50	'90	'90	'28	'33	'77
	'74	'19	'50	'89	'90	'27	'32	'76
	'76	'20	'52	'90	'91	'27	'32	'74
	'76	'19	'50	'90	'91	'30	'32	'75
	'72	'20	'51	'90	'91	'32	'32	'77
	'74	'19	'50	'90	'91	'30	'35	'74
	'74	'19	'50	'89	'90	'32	'39	'75
	'76	'18	'48	'91	'90	'32	'35	'80
	'75	'16	'48	'90	'90	'36	'34	'76
	'75	'16	'46	'88	'89	'34	'33	'74
	'74	'15	'48	'90	'89	'30	'33	'76
	'77	'14	'45	'89	'90	'30	'31	'75
	'78	'13	'45	'90	'90	'34	'31	'74
	'77	'15	'46	'90	'90	'31	'30	'74
	'77	'16	'47	'89	'90	'30	'31	'76
	'78	'16	'46	'90	'91	'29	'31	'76
	'78	'18	'48	'89	'92	'29	'30	'74
	'76	'18	'47	'89	'94	'26	'30	'71
	'75	'18	'49	'88	'96	'25	'30	'73
Corresponding Mean Observed Times at	$h\ m\ s$ 4 41 45	$h\ m\ s$ 4 44 40	$h\ m\ s$ 4 46 37	$h\ m\ s$ 4 43 6	$h\ m\ s$ 5 36 11	$h\ m\ s$ 5 39 30	$h\ m\ s$ 5 41 11	$h\ m\ s$ 5 38 6
			$s$ +0'483	$s$ +0'895			$s$ +0'323	$s$ +0'751
	$h\ m\ s$ 4 33 46	$h\ m\ s$ 4 36 45	$h\ m\ s$ 4 38 40	$h\ m\ s$ 4 35 11	$h\ m\ s$ 5 28 12	$h\ m\ s$ 5 31 35	$h\ m\ s$ 5 33 14	$h\ m\ s$ 5 30 11
	$s$ +0'753	$s$ +0'172			$s$ +0'909	$s$ +0'298		
Difference	$m\ s$ 7 58'247	$m\ s$ 7 54'828	$m\ s$ 7 57'483	$m\ s$ 7 55'895	$m\ s$ 7 58'091	$m\ s$ 7 54'702	$m\ s$ 7 57'323	$m\ s$ 7 55'751

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1881 December 14	$s$ 6.85	$s$ 48.29	$s$ 34.35	$s$ 12.75	$s$ 35.08	$s$ 58.38	$s$ 24.20	$s$ 47.59
	.86	.29	.35	.74	.08	.39	.20	.60
	.88	.29	.34	.74	.06	.39	.20	.60
	.88	.30	.36	.71	.06	.40	.19	.61
	.89	.30	.35	.71	.06	.39	.19	.61
	.90	.30	.39	.74	.10	.40	.19	.61
	.90	.30	.35	.70	.09	.40	.19	.62
	.91	.29	.36	.74	.09	.40	.20	.61
	.91	.29	.34	.71	.06	.40	.18	.63
	.94	.28	.35	.75	.09	.40	.18	.60
	.94	.30	.35	.72	.06	.40	.20	.60
	.92	.28	.35	.72	.09	.40	.20	.61
	.93	.29	.34	.72	.05	.40	.21	.61
	.91	.29	.34	.72	.08	.41	.20	.60
	.90	.30	.33	.72	.04	.41	.19	.60
	.89	.30	.33	.74	.05	.40	.20	.60
	.88	.31	.34	.73	.08	.41	.20	.56
	.86	.30	.35	.72	.09	.40	.21	.59
	.85	.29	.36	.74	.09	.41	.20	.61
	.91	.26	.36	.73	.10	.42	.20	.61
Corresponding Mean Observed Times at	$h\ m\ s$ 4 41 12	$h\ m\ s$ 4 43 50	$h\ m\ s$ 4 45 44	$h\ m\ s$ 4 42 22	$h\ m\ s$ 5 35 40	$h\ m\ s$ 5 39 0	$h\ m\ s$ 5 40 34	$h\ m\ s$ 5 36 57
	$s$ +0.896	$s$ +0.293	$s$ +0.350	$s$ +0.728	$s$ +0.075	$s$ +0.401	$s$ +0.197	$s$ +0.604
	$h\ m\ s$ 4 33 16	$h\ m\ s$ 4 35 58	$h\ m\ s$ 4 37 50	$h\ m\ s$ 4 34 30	$h\ m\ s$ 5 27 45	$h\ m\ s$ 5 31 8	$h\ m\ s$ 5 32 40	$h\ m\ s$ 5 29 5
	$s$ +0.896	$s$ +0.293	$s$ +0.350	$s$ +0.728	$s$ +0.075	$s$ +0.401	$s$ +0.197	$s$ +0.604
Difference	$m\ s$ 7 55.104	$m\ s$ 7 51.707	$m\ s$ 7 54.350	$m\ s$ 7 52.728	$m\ s$ 7 54.925	$m\ s$ 7 51.599	$m\ s$ 7 54.197	$m\ s$ 7 52.604

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1881 December 16	s 20'64	s 13'98	s 29'01	s 51'62	s 10'74	s 24'05	s 38'90	s 21'50
	'64	14'00	'02	'62	'74	'07	'92	'50
	'63	14'00	'00	'62	'72	'10	'92	'50
	'65	13'99	'00	'62	'73	'10	'91	'50
	'64	13'99	'00	'60	'73	'10	'90	'50
	'63	13'97	'02	'60	'75	'10	'90	'49
	'63	13'98	'00	'60	'73	'10	'90	'50
	'64	13'98	'01	'60	'72	'09	'90	'50
	'62	13'97	'00	'59	'70	'10	'90	'50
	'61	13'98	'01	'60	'70	'10	'92	'50
	'60	13'98	'01	'60	'70	'10	'91	'51
	'60	13'99	'01	'61	'72	'10	'91	'50
	'61	14'00	'00	'61	'75	'11	'92	'51
	'62	14'00	'00	'60	'76	'11	'93	'50
	'60	14'00	'00	'60	'74	'10	'90	'52
	'61	14'02	'01	'60	'75	'10	'91	'50
	'61	14'03	'00	'60	'73	'10	'91	'50
	'62	14'03	'00	'60	'74	'10	'91	'51
	'61	14'02	'00	'60	'75	'10	'91	'50
	'60	14'01	'02	'60	'77	'10	'92	'50
Corresponding Mean Observed Times at	$\begin{matrix} h & m & s \\ 4 & 41 & 20 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 44 & 10 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 45 & 39 \\ & s \\ & +0'006 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 43 & 1 \\ & s \\ & +0'605 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 35 & 10 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 38 & 20 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 39 & 48 \\ & s \\ & +0'910 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 36 & 31 \\ & s \\ & +0'502 \end{matrix}$
	$\begin{matrix} h & m & s \\ 4 & 33 & 30 \\ & s \\ & +0'621 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 36 & 23 \\ & s \\ & +0'996 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 37 & 50 \end{matrix}$	$\begin{matrix} h & m & s \\ 4 & 35 & 15 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 27 & 20 \\ & s \\ & +0'734 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 30 & 34 \\ & s \\ & +0'097 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 32 & 0 \end{matrix}$	$\begin{matrix} h & m & s \\ 5 & 28 & 45 \end{matrix}$
Difference	$\begin{matrix} m & s \\ 7 & 49'379 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 46'004 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 49'006 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 46'605 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 49'266 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 45'903 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 48'910 \end{matrix}$	$\begin{matrix} m & s \\ 7 & 46'502 \end{matrix}$

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1881 December 19	$s$ 24'66	$s$ 28'04	$s$ 45'01	$s$ 4'60	$s$ 44'64	$s$ 48'01	$s$ 32'94	$s$ 14'52
	'64	'00	'01	'60	'65	'02	'95	'58
	'63	'01	'01	'60	'67	'02	'95	'55
	'63	'00	'01	'60	'66	'02	'96	'56
	'62	'00	'01	'60	'64	'01	'95	'60
	'64	'00	'00	'61	'65	'00	'97	'58
	'63	'01	'01	'60	'65	'00	'96	'57
	'65	'00	'02	'60	'68	'00	'96	'59
	'66	'02	'00	'60	'66	'01	'96	'56
	'65	'01	'01	'61	'69	'01	'98	'59
	'66	'00	'01	'60	'70	'01	'99	'57
	'66	'00	'01	'61	'70	'02	'97	'57
	'68	'00	'00	'60	'70	'01	'98	'60
	'70	'01	'00	'60	'70	'01	'98	'58
	'69	'01	'00	'63	'69	'01	'97	'57
	'69	'02	'01	'61	'66	'02	'98	'55
	'66	'02	'00	'60	'66	'01	'97	'55
	'65	'04	'01	'60	'65	'01	'96	'55
	'66	'03	'02	'61	'65	'00	'97	'55
	'65	'02	'02	'60	'63	'02	'97	'55
Corresponding Mean Observed Times at	$h\ m\ s$ 4 42 20	$h\ m\ s$ 4 45 20	$h\ m\ s$ 4 46 55 $s$ + 0'009	$h\ m\ s$ 4 44 14 $s$ + 0'604	$h\ m\ s$ 5 35 40	$h\ m\ s$ 5 38 40	$h\ m\ s$ 5 40 42 $s$ + 0'966	$h\ m\ s$ 5 37 24 $s$ + 0'567
	$h\ m\ s$ 4 34 34 $s$ + 0'656	$h\ m\ s$ 4 37 38 $s$ + 0'012	$h\ m\ s$ 4 39 10	$h\ m\ s$ 4 36 32	$h\ m\ s$ 5 27 54 $s$ + 0'667	$h\ m\ s$ 5 30 58 $s$ + 0'011	$h\ m\ s$ 5 32 58	$h\ m\ s$ 5 29 42
Difference	$m\ s$ 7 45'344	$m\ s$ 7 41'988	$m\ s$ 7 45'009	$m\ s$ 7 42'604	$m\ s$ 7 45'333	$m\ s$ 7 41'989	$m\ s$ 7 44'966	$m\ s$ 7 42'567



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1881 December 20	<i>s</i> 44' 95	<i>s</i> 14' 15	<i>s</i> 8' 72	<i>s</i> 20' 35	<i>s</i> 40' 00	<i>s</i> 54' 24	<i>s</i> 45' 72	<i>s</i> 52' 32
	'96	'16	'74	'36	'01	'21	'70	'31
	'94	'18	'73	'35	'01	'21	'73	'30
	'96	'19	'74	'35	'01	'20	'70	'30
	'95	'20	'72	'35	'02	'20	'70	'31
	'95	'20	'75	'35	'02	'20	'72	'31
	'95	'21	'74	'34	'01	'20	'70	'31
	'94	'23	'75	'34	'00	'20	'71	'30
	'96	'23	'73	'35	'00	'20	'70	'30
	'95	'25	'73	'35	'00	'21	'70	'31
	'96	'24	'73	'35	'01	'20	'70	'30
	'96	'22	'74	'35	'01	'20	'70	'30
	'96	'20	'74	'34	'02	'20	'70	'29
	'99	'21	'74	'35	'01	'21	'68	'30
	'96	'20	'74	'34	'01		'70	'30
	'96	'20	'73	'35	'00		'70	'31
	'97	'20	'73	'35	'02		'70	'30
	'99	'21	'72	'35	'03		'70	'31
	'98	'23	'72	'35	'03		'71	'30
	'95	'22	'73	'36	'03		'70	'31
Corresponding Mean Observed Times at	<i>h m s</i> 4 40 40	<i>h m s</i> 4 44 6	<i>h m s</i> 4 45 18 <i>s</i> +0'734	<i>h m s</i> 4 42 30 <i>s</i> +0'349	<i>h m s</i> 5 37 35	<i>h m s</i> 5 41 43	<i>h m s</i> 5 42 55 <i>s</i> +0'704	<i>h m s</i> 5 39 2 <i>s</i> +0'305
	<i>h m s</i> 4 32 54 <i>s</i> +0'960	<i>h m s</i> 4 36 24 <i>s</i> +0'207	<i>h m s</i> 4 37 34	<i>h m s</i> 4 34 48	<i>h m s</i> 5 29 50 <i>s</i> +0'013	<i>h m s</i> 5 34 1 <i>s</i> +0'206	<i>h m s</i> 5 35 11	<i>h m s</i> 5 31 20
Difference	<i>m s</i> 7 45'040	<i>m s</i> 7 41'793	<i>m s</i> 7 44'734	<i>m s</i> 7 42'349	<i>m s</i> 7 44'987	<i>m s</i> 7 41'794	<i>m s</i> 7 44'704	<i>m s</i> 7 42'305

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 January 4	s 1'09	s 2'30	s 35'52	s 10'40	s 31'80	s 22'10	s 38'80	s 39'68
	'09	'31	'50	'40	'80	'09	'80	'69
	'10	'33	'50	'40	'80	'10	'80	'67
	'08	'31	'54	'39	'80	'10	'80	'68
	'08	'33	'51	'39	'80	'09	'80	'66
	'07	'31	'55	'40	'81	'10	'80	'62
	'09	'30	'51	'40	'80	'09	'80	'62
	'09	'32	'53	'39	'79	'10	'81	'60
	'10	'30	'50	'38	'80	'09	'80	'60
	'09	'34	'51	'38	'80	'10	'80	'60
	'09	'30	'51	'38	'80	'10	'80	'60
	'06	'33	'50	'40	'80	'08	'79	'60
	'09	'30	'50	'40	'79	'09	'79	'60
	'09	'34	'50	'40	'80	'09	'79	'60
	'09	'30	'50	'40	'80	'07	'79	'62
	'07	'32	'50	'40	'80	'08	'79	'63
	'10	'30	'50	'40	'80	'08	'77	'63
	'09	'33	'49	'40	'80	'07	'76	'64
	'09	'30	'50	'40	'80	'09	'77	'65
	'10	'34	'56	'40	'79	'08	'76	'63
Corresponding Mean Observed Times at	h m s 6 11 41	h m s 6 14 40	h m s 6 12 45	h m s 6 16 20	h m s 7 13 12	h m s 7 16 0	h m s 7 14 48	h m s 7 16 49
	s +0'088	s +0'315	s +0'511	s +0'396	s +0'799	s +0'090	s +0'791	s +0'631
	h m s 6 1 11	h m s 6 4 12	h m s 6 2 18	h m s 6 5 50	h m s 7 2 41	h m s 7 5 32	h m s 7 4 21	h m s 7 6 19
	s +0'088	s +0'315	s +0'511	s +0'396	s +0'799	s +0'090	s +0'791	s +0'631
Difference	m s 10 29'912	m s 10 27'685	m s 10 27'511	m s 10 30'396	m s 10 30'201	m s 10 27'910	m s 10 27'791	m s 10 30'631

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1882 January 5	$s$ 2'92	$s$ 2'19	$s$ 2'60	$s$ 2'50	$s$ 27'70	$s$ 2'94	$s$ 12'89	$s$ 5'73
	'93	'19	'60	'48	'70	'97	'90	'75
	'92	'20	'60	'49	'70	'94	'89	'75
	'93	'19	'62	'48	'70	'96	'89	'74
	'92	'21	'63	'47	'70	'95	'88	'73
	'94	'19	'65	'46	'70	'99	'89	'77
	'93	'20	'64	'48	'70	'96	'88	'77
	'93	'18	'63	'49	'70	'98	'89	'79
	'92	'20	'61	'50	'70	'95	'89	'77
	'95	'19	'61	'50	'70	'99	'89	'75
	'92	'20	'63	'50	'70	'98	'89	'76
	'94	'20	'63	'50	'70	'98	'90	'76
	'93	'20	'62	'50	'69	'97	'89	'77
	'93	'20	'63	'50	'70	'99	'89	'77
	'93	'20	'61	'50	'70	'98	'88	'78
	'92	'20	'61	'49	'70	'98	'90	'75
	'91	'20	'60	'50	'70	'96	'90	'75
	'94	'20	'61	'50	'70	'98	'90	'75
	'94	'20	'63	'50	'69	'97	'90	'74
	'95	'20	'63	'50	'69	'98	'90	'74
Corresponding Mean Observed Times at	$h\ m\ s$ 6 10 48	$h\ m\ s$ 6 13 45	$h\ m\ s$ 6 12 12	$h\ m\ s$ 6 15 12	$h\ m\ s$ 7 15 13	$h\ m\ s$ 7 17 46	$h\ m\ s$ 7 16 22	$h\ m\ s$ 7 19 15
	$s$ +0'930	$s$ +0'197	$s$ +0'620	$s$ +0'492	$s$ +0'699	$s$ +0'970	$s$ +0'892	$s$ +0'756
	$h\ m\ s$ 6 0 12	$h\ m\ s$ 6 3 12	$h\ m\ s$ 6 1 40	$h\ m\ s$ 6 4 37	$h\ m\ s$ 7 4 37	$h\ m\ s$ 7 7 12	$h\ m\ s$ 7 5 50	$h\ m\ s$ 7 8 40
	$s$ +0'930	$s$ +0'197			$s$ +0'699	$s$ +0'970		
Difference	$m\ s$ 10 35'070	$m\ s$ 10 32'803	$m\ s$ 10 32'620	$m\ s$ 10 35'492	$m\ s$ 10 35'301	$m\ s$ 10 33'030	$m\ s$ 10 32'892	$m\ s$ 10 35'756

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 January 6	s 35'44	s 1'72	s 39'10	s 11'01	s 20'20	s 1'42	s 18'45	s 1'25
	'46	'74	'10	11'03	'20	'46	'45	'28
	'46	'72	'11	11'00	'20	'48	'44	'23
	'47	'74	'10	11'01	'19	'45	'44	'24
	'46	'73	'10	11'00	'20	'43	'41	'25
	'45	'74	'10	11'00	'20	'45	'43	'25
	'46	'73	'09	11'00	'20	'44	'41	'28
	'45	'75	'10	11'00	'20	'48	'40	'26
	'44	'72	'10	11'00	'20	'47	'40	'20
	'44	'74	'16	11'00	'19	'45	'40	'25
	'43	'73	'15	11'00	'20	'47	'37	'25
	'46	'73	'10	10'99	'20	'48	'41	'26
	'44	'73	'14	10'98	'20	'44	'44	'27
	'47	'73	'16	10'99	'20	'46	'40	'27
	'46	'73	'10	10'99	'18	'46	'37	'26
	'47	'74	'10	11'02	'18	'45	'37	'27
	'44	'73	'10	11'02	'18	'48	'36	'26
	'49	'74	'10	11'04	'19	'48	'39	'26
	'44	'73	'09	11'02	'18	'47	'40	'23
	'47	'72	'05	11'04	'18	'46	'43	'26
Corresponding Mean Observed Times at	<i>h m s</i> 6 10 26	<i>h m s</i> 6 13 50	<i>h m s</i> 6 11 49	<i>h m s</i> 6 15 21	<i>h m s</i> 7 15 11	<i>h m s</i> 7 17 50	<i>h m s</i> 7 16 28	<i>h m s</i> 7 20 11
	<i>s</i> +0'455	<i>s</i> +0'732	<i>s</i> +0'108	<i>s</i> +0'007	<i>s</i> +0'194	<i>s</i> +0'459	<i>s</i> +0'409	<i>s</i> +0'254
	<i>h m s</i> 5 59 45	<i>h m s</i> 6 3 11	<i>h m s</i> 6 1 11	<i>h m s</i> 6 4 40	<i>h m s</i> 7 4 30	<i>h m s</i> 7 7 11	<i>h m s</i> 7 5 50	<i>h m s</i> 7 9 30
Difference	<i>m s</i> 10 40'545	<i>m s</i> 10 38'268	<i>m s</i> 10 38'108	<i>m s</i> 10 41'007	<i>m s</i> 10 40'806	<i>m s</i> 10 38'541	<i>m s</i> 10 38'409	<i>m s</i> 10 41'254

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 January 7	s 30'05	s 17'36	s 1'49	s 54'30	s 48'76	s 16'06	s 20'79	s 2'63
	'04	'39	'49	'31	'79	'05	'80	'64
	'03	'38	'49	'30	'79	'05	'80	'63
	'02	'38	'48	'31	'80	'06	'80	'61
	'04	'38	'48	'30	'79	'05	'80	'62
	'01	'38	'47	'30	'80	'05	'80	'61
	'03	'37	'47	'30	'79	'04	'79	'63
	'07	'34	'48	'30	'79	'04	'79	'63
	'09	'34	'50	'31	'80	'04	'80	'61
	'08	'35	'50	'30	'80	'05	'80	'62
	'09	'34	'49	'30	'79	'03	'80	'64
	'07	'34	'50	'30	'80	'03	'81	'66
	'09	'33	'50	'30	'79	'05	'80	'64
	'09	'35	'48	'30	'80	'02	'80	'64
	'09	'33	'49	'30	'79	'00	'79	'64
	'08	'34	'46	'30	'80	'01	'78	'62
	'09	'35	'46	'31	'80	'02	'80	'62
	'07	'34	'45	'33	'80	'01	'80	'63
	'08	'32	'45	'33	'79	'02	'78	'64
	'08	'34	'46	'33	'79	'00	'79	'66
Corresponding Mean Observed Times at	h m s 6 10 27	h m s 6 13 12	h m s 6 11 11	h m s 6 15 4	h m s 7 15 46	h m s 7 18 11	h m s 7 16 30	h m s 7 20 12
	s +0'065	s +0'352	s +0'480	s +0'307	s +0'793	s +0'034	s +0'796	s +0'631
	h m s 5 59 40	h m s 6 2 27	h m s 6 0 27	h m s 6 4 17	h m s 7 4 58	h m s 7 7 26	h m s 7 5 46	h m s 7 9 25
	s +0'065	s +0'352			s +0'793	s +0'034		
Difference	m s 10 46'935	m s 10 44'648	m s 10 44'480	m s 10 47'307	m s 10 47'207	m s 10 44'966	m s 10 44'796	m s 10 47'631

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 January 9	s 3' 20	s 5' 49	s 26' 32	s 2' 20	s 35' 95	s 5' 23	s 35' 60	s 39' 47
	' 22	' 49	' 35	' 20	' 94	' 26	' 60	' 47
	' 21	' 49	' 37	' 20	' 96	' 25	' 62	' 48
	' 20	' 50	' 38	' 20	' 95	' 24	' 61	' 47
	' 20	' 49	' 40	' 20	' 97	' 24	' 60	' 47
	' 20	' 50	' 41	' 20	' 94	' 22	' 61	' 47
	' 20	' 49	' 40	' 20	' 97	' 22	' 63	' 47
	' 20	' 49	' 42	' 20	' 95	' 21	' 64	' 46
	' 20	' 49	' 40	' 20	' 96	' 22	' 67	' 44
	' 20	' 48	' 40	' 20	' 95	' 22	' 65	' 45
	' 20	' 47	' 39	' 23	' 97	' 22	' 66	' 45
	' 20	' 48	' 38	' 21	' 98	' 20	' 67	' 46
	' 20	' 47	' 36	' 21	' 98	' 20	' 66	' 45
	' 20	' 48	' 37	' 21	' 97	' 20	' 66	' 45
	' 20	' 48	' 37	' 22	' 98	' 20	' 65	' 46
	' 20	' 48	' 37	' 22	' 98	' 20	' 64	' 46
	' 20	' 47	' 36	' 22	' 99	' 20	' 62	' 47
	' 20	' 48	' 38	' 20	' 98	' 21	' 60	' 48
	' 18	' 46	' 39	' 23	' 98	' 20	' 60	' 48
	' 18	' 47	' 39	' 23	' 97	' 20	' 60	' 47
Corresponding Mean Observed Times at	<i>E</i> h m s 6 10 12	<i>E</i> h m s 6 13 12	<i>E</i> h m s 6 11 36 s +0' 381	<i>E</i> h m s 6 14 12 s +0' 209	<i>E</i> h m s 7 12 45	<i>E</i> h m s 7 16 12	<i>E</i> h m s 7 14 45 s +0' 630	<i>E</i> h m s 7 16 49 s +0' 464
	<i>W</i> h m s 5 59 13 s +0' 200	<i>W</i> h m s 6 2 15 s +0' 482	<i>W</i> h m s 6 0 40	<i>W</i> h m s 6 3 13	<i>W</i> h m s 7 1 45 s +0' 966	<i>W</i> h m s 7 5 15 s +0' 217	<i>W</i> h m s 7 3 49	<i>W</i> h m s 7 5 50
Difference	m s 10 58' 800	m s 10 56' 518	m s 10 56' 381	m s 10 59' 209	m s 10 59' 034	m s 10 56' 783	m s 10 56' 630	m s 10 59' 464

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1882 January 10	$s$ 36'45	$s$ 2'79	$s$ 30'12	$s$ 39'92	$s$ 36'29	$s$ 5'60	$s$ 39'42	$s$ 40'26
	'46	'79	'10	'94	'30	'60	'43	'26
	'45	'78	'11	'95	'29	'60	'45	'24
	'48	'79	'10	'96	'30	'60	'45	'21
	'46	'79	'10	'95	'29	'60	'40	'21
	'48	'79	'10	'96	'30	'60	'40	'22
	'47	'78	'11	'96	'30	'59	'40	'27
	'48	'78	'10	'95	'30	'60	'41	'26
	'46	'78	'08	'93	'30	'60	'40	'21
	'48	'78	'09	'95	'30	'60	'41	'20
	'47	'78	'10	'95	'30	'60	'40	'20
	'49	'77	'10	'97	'30	'60	'40	'20
	'48	'77	'12	'93	'30	'60	'37	'20
	'49	'76	'10	'96	'30	'59	'38	'24
	'47	'76	'11	'96	'30	'59	'39	'26
	'49	'75	'10	'94	'30	'58	'39	'26
	'48	'75	'10	'93	'30	'58	'40	'25
	'49	'75	'09	'91	'30	'59	'40	'25
	'48	'75	'09	'95	'30	'59	'40	'21
	'49	'75	'09	'95	'30	'58	'40	'21
Corresponding Mean Observed Times at	$h\ m\ s$ 6 8 50	$h\ m\ s$ 6 11 14	$h\ m\ s$ 6 9 40	$h\ m\ s$ 6 12 49	$h\ m\ s$ 7 12 50	$h\ m\ s$ 7 15 17	$h\ m\ s$ 7 6 49	$h\ m\ s$ 7 7 50
	$s$ +0'475	$s$ +0'772	$s$ +0'101	$s$ +0'946	$s$ +0'299	$s$ +0'594	$s$ +0'405	$s$ +0'231
Difference	$m\ s$ 11 3'525	$m\ s$ 11 1'228	$m\ s$ 11 1'101	$m\ s$ 11 3'946	$m\ s$ 11 3'701	$m\ s$ 11 1'406	$m\ s$ 11 1'405	$m\ s$ 11 4'231

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 January 19	$s$ 35 <sup>h</sup> 03 <sup>m</sup>	$s$ 46 <sup>h</sup> 80 <sup>m</sup>	$s$ 56 <sup>h</sup> 17 <sup>m</sup>	$s$ 15 <sup>h</sup> 34 <sup>m</sup>	$s$ 15 <sup>h</sup> 36 <sup>m</sup>	$s$ 10 <sup>h</sup> 14 <sup>m</sup>	$s$ 7 <sup>h</sup> 84 <sup>m</sup>	$s$ 53 <sup>h</sup> 00 <sup>m</sup>
	03	82	17	39	32	15	84	03
	02	80	17	35	34	14	86	03
	03	80	18	33	35	13	85	05
	02	80	18	33	35	13	89	04
	03	85	16	33	31	15	88	06
	01	80	19	34	34	15	89	
	01	84	17	34	36	14	88	
	04	81	19	34	34	15	89	
	03	81	18	34	35	15	87	
	05	79	19	32	32	15	90	
	05	83	16	34	34	14	89	
	03	84	15	34	35	14	91	
	05	81	16	37	35	15	89	
	02	82	16	36	35	15	91	
	05	83	17	40	34	14	90	
	04	80	19	40	31	14	90	
	03	83	19	40	33	14	90	
	03	81	21	38	34	15	91	
	04	82	18	38	31	15	89	
Corresponding Mean Observed Times at	$h\ m\ s$ 7 22 31	$h\ m\ s$ 7 25 40	$h\ m\ s$ 7 27 6 $s$ +0 <sup>h</sup> 17 <sup>m</sup> 6 <sup>s</sup>	$h\ m\ s$ 7 24 25 $s$ +0 <sup>h</sup> 35 <sup>m</sup> 6 <sup>s</sup>	$h\ m\ s$ 8 29 12	$h\ m\ s$ 8 32 4	$h\ m\ s$ 8 33 17 $s$ +0 <sup>h</sup> 88 <sup>m</sup> 5 <sup>s</sup>	$h\ m\ s$ 8 30 56 $s$ +0 <sup>h</sup> 03 <sup>m</sup> 5 <sup>s</sup>
	$h\ m\ s$ 7 2 45 $s$ +0 <sup>h</sup> 03 <sup>m</sup> 2 <sup>s</sup>	$h\ m\ s$ 7 5 56 $s$ +0 <sup>h</sup> 81 <sup>m</sup> 6 <sup>s</sup>	$h\ m\ s$ 7 7 20	$h\ m\ s$ 7 4 42	$h\ m\ s$ 8 9 25 $s$ +0 <sup>h</sup> 33 <sup>m</sup> 8 <sup>s</sup>	$h\ m\ s$ 8 12 20 $s$ +0 <sup>h</sup> 14 <sup>m</sup> 4 <sup>s</sup>	$h\ m\ s$ 8 13 31	$h\ m\ s$ 8 11 12
Difference	$m\ s$ 19 45 <sup>h</sup> 968 <sup>m</sup>	$m\ s$ 19 43 <sup>h</sup> 184 <sup>m</sup>	$m\ s$ 19 46 <sup>h</sup> 176 <sup>m</sup>	$m\ s$ 19 43 <sup>h</sup> 356 <sup>m</sup>	$m\ s$ 19 46 <sup>h</sup> 662 <sup>m</sup>	$m\ s$ 19 43 <sup>h</sup> 856 <sup>m</sup>	$m\ s$ 19 46 <sup>h</sup> 885 <sup>m</sup>	$m\ s$ 19 44 <sup>h</sup> 035 <sup>m</sup>



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1882 January 20	<i>s</i> 19'02	<i>s</i> 6'86	<i>s</i> 11'20	<i>s</i> 3'31	<i>s</i> 3'36	<i>s</i> 36'15	<i>s</i> 12'90	<i>s</i> 19'05
	'03	'84	'20	'31	'37	'13	'01	'07
	'02	'85	'16	'40	'35	'14	'01	'06
	'02	'84	'19	'30	'36	'13	'00	'03
	'00	'84	'21	'33	'38	'16	'95	'07
	'03	'86	'20	'33	'37	'13	'91	'05
	'00	'84	'20	'39	'39	'15	'94	'02
	'04	'85	'22	'38	'35	'10	'91	'05
	'04	'84	'20	'39	'35	'14	'91	'05
	'04	'86	'20	'37	'35	'11	'90	'07
	'01	'84	'20	'38	'36	'11	'94	'05
	'02	'83	'22	'39	'35	'13	'95	'07
	'00	'86	'22	'35	'35	'15	'95	'04
	'00	'84	'24	'34	'35	'13	'00	'10
	'00	'84	'21	'30	'34	'13		'09
	'04	'84	'20	'31	'36	'15		'10
	'00	'85	'21	'38	'38	'16		'05
	'02	'84	'20	'36	'35	'15		'04
	'00	'82	'20	'40	'34	'13		'11
	'03	'82	'20	'39	'35	'14		'11
Corresponding Mean Observed Times at	<i>h m s</i> 7 22 30	<i>h m s</i> 7 25 15	<i>h m s</i> 7 27 21	<i>h m s</i> 7 24 13	<i>h m s</i> 8 29 15	<i>h m s</i> 8 31 45	<i>h m s</i> 8 33 19	<i>h m s</i> 8 30 29
	<i>s</i> +0'018	<i>s</i> +0'843	<i>s</i> +0'204	<i>s</i> +0'354	<i>s</i> +0'358	<i>s</i> +0'136	<i>s</i> +0'949	<i>s</i> +0'064
Difference	<i>m s</i> 20 0'982	<i>m s</i> 19 58'157	<i>m s</i> 20 1'204	<i>m s</i> 19 58'354	<i>m s</i> 20 1'642	<i>m s</i> 19 58'864	<i>m s</i> 20 1'949	<i>m s</i> 19 59'064

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1882 January 21	s 34'20	s 56'97	s 20'00	s 55'19	s 45'50	s 48'28	s 5'76	s 10'92
	'18	'98	'05	'20	'50	'27	'76	'90
	'19	'97	'09	'17	'50	'28	'76	'90
	'17	'97	'08	'19	'51	'28	'75	'90
	'19	'96	'09	'19	'50	'27	'76	'90
	'19	'96	'08	'19	'50	'25	'76	'91
	'21	'95	'02	'20	'50	'26	'71	'90
	'20	'96	'01	'21	'50	'29	'70	'90
	'16	'94	'05	'20	'49	'26	'72	'89
	'19	'96	'04	'20	'50	'25	'71	'88
	'19	'96	'04	'21	'50	'25	'78	'94
	'19	'97	'01	'20	'51	'25	'78	'90
	'21	'95	'01	'20	'49	'25	'73	'91
	'20	'96	'10	'17	'49	'25	'75	'89
	'20	'95	'10	'19	'49	'24	'70	'90
	'20	'95	'06	'19	'50	'25		'90
	'19	'92	'05	'19	'50	'24		'95
	'20	'96	'04	'19	'51	'26		'91
	'21	'95	'08	'20	'50	'25		'90
	'20	'96	'05	'19	'50	'25		'92
Corresponding Mean Observed Times at	E h m s 7 22 0	E h m s 7 25 20	E h m s 7 26 30 s +0'053	E h m s 7 23 5 s +0'194	E h m s 8 29 12	E h m s 8 32 12	E h m s 8 33 15 s +0'742	E h m s 8 30 30 s +0'906
	W h m s 7 1 44 s +0'194	W h m s 7 5 6 s +0'958 .	W h m s 7 6 14	W h m s 7 2 52	W h m s 8 8 55 s +0'500	W h m s 8 11 58 s +0'259	W h m s 8 12 59	W h m s 8 10 17
Difference	m s 20 15'806	m s 20 13'042	m s 20 16'053	m s 20 13'194	m s 20 16'500	m s 20 13'741	m s 20 16'742	m s 20 13'906

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1882 January 24	s 39'95	s 44'71	s 18'25	s 20'52	s 2'29	s 39'04	s 33'90	s 46'12
	'95	'75	'25	'48	'28	'04	'92	'11
	'95	'73	'27	'44	'30	'03	'94	'10
	'95	'73	'30	'44	'28	'02	'90	'11
	'95	'73	'29	'49	'29	'03	'94	'12
	'96	'75	'25	'50	'29	'02	'94	'16
	'96	'71	'26	'50	'30	'02	'98	'14
	'98	'74	'25	'41	'29	'03	'97	'14
	'99	'70	'28	'49	'29	'04	'98	'18
	'00	'74	'30	'49	'30	'04	'97	'18
	'98	'74	'30	'50	'29	'04	'98	'14
	'99	'74	'25	'50	'28	'04	'93	'15
	'98	'73	'21	'49	'28	'06	'95	'13
	'00	'77	'25	'46	'28	'05	'91	'14
	'98	'74	'30	'50	'25	'04	'93	'14
	'00	'74	'25	'41	'24	'05	'90	'15
	'99	'74	'26	'48	'25	'05	'93	'13
	'98	'76	'26	'44	'25	'04	'95	'13
	'00	'73	'28	'45	'25	'06	'94	'17
	'98	'73	'25	'45	'25	'05	'90	'21
Corresponding Mean Observed Times at	h m s 7 21 48	h m s 7 24 50	h m s 7 26 28	h m s 7 23 30	h m s 8 27 11	h m s 8 29 45	h m s 8 33 43	h m s 8 29 56
	s +0'976	s +0'736	s +0'266	s +0'472	s +0'277	s +0'040	s +0'938	s +0'143
	h m s 7 0 49	h m s 7 3 54	h m s 7 5 30	h m s 7 2 35	h m s 8 6 12	h m s 8 8 49	h m s 8 12 45	h m s 8 9 0
	s +0'976	s +0'736			s +0'277	s +0'040		
Difference	m s 20 58'024	m s 20 55'264	m s 20 58'266	m s 20 55'472	m s 20 58'723	m s 20 55'960	m s 20 58'938	m s 20 56'143

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 January 25	$s$ 52'09	$s$ 19'87	$s$ 53'13	$s$ 15'40	$s$ 6'30	$s$ 41'10	$s$ 23'87	$s$ 12'09
	'08	'85	'16	'36	'30	'11	'86	'09
	'09	'85	'11	'38	'30	'10	'85	'08
	'04	'84	'13	'33	'27	'11	'83	'09
	'08	'85	'11	'32	'29	'10	'87	'10
	'08	'84	'14	'39	'30	'14	'85	'08
	'10	'85	'14	'39	'30	'10	'86	'10
	'09	'84	'13	'35	'30	'11	'86	'08
	'08	'81	'13	'40	'27	'11	'86	'10
	'06	'84	'16	'35	'29	'12	'88	'10
	'05	'83	'16	'36	'30	'11	'89	'11
	'06	'83	'18	'36	'30	'12	'89	'10
	'10	'81	'15	'34	'30	'11	'86	'11
	'08	'84	'16	'34	'30	'11	'85	'10
	'05	'81	'15	'36	'30	'11	'86	'12
	'05	'84	'15	'36	'30	'11	'90	'10
	'08	'84	'14	'39	'29	'10	'90	'11
	'08	'84	'13	'35	'30	'11	'90	'08
	'07	'84	'14	'36	'28	'10	'90	'10
	'05	'85	'16	'40	'28	'12	'90	'10
Corresponding Mean Observed Times at	$h\ m\ s$ 7 22 15	$h\ m\ s$ 7 24 40	$h\ m\ s$ 7 26 3	$h\ m\ s$ 7 23 25	$h\ m\ s$ 8 28 30	$h\ m\ s$ 8 31 2	$h\ m\ s$ 8 32 33	$h\ m\ s$ 8 30 22
	$s$ +0'073	$s$ +0'839	$s$ +0'143	$s$ +0'365	$s$ +0'294	$s$ +0'110	$s$ +0'872	$s$ +0'097
	$h\ m\ s$ 7 1 2	$h\ m\ s$ 7 3 29	$h\ m\ s$ 7 4 50	$h\ m\ s$ 7 2 15	$h\ m\ s$ 8 7 16	$h\ m\ s$ 8 9 51	$h\ m\ s$ 8 11 20	$h\ m\ s$ 8 9 11
	$s$ +0'073	$s$ +0'839			$s$ +0'294	$s$ +0'110		
Difference	$m\ s$ 21 12'927	$m\ s$ 21 10'161	$m\ s$ 21 13'143	$m\ s$ 21 10'365	$m\ s$ 21 13'706	$m\ s$ 21 10'890	$m\ s$ 21 13'872	$m\ s$ 21 11'097

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 January 26	$s$ 33'43	$s$ 14'22	$s$ 1'86	$s$ 36'04	$s$ 9'66	$s$ 28'43	$s$ 2'60	$s$ 28'75
	'44	'20	'81	'01	'65	'40	'60	'79
	'43	'20	'85	'02	'65	'42	'64	'81
	'42	'20	'80	'01	'65	'42	'61	'81
	'41	'21	'80	'01	'66	'40	'59	'82
	'44	'19	'82	'07	'65	'40	'63	'82
	'44	'19	'83	'04	'65	'40	'62	'81
	'44	'22	'83	'08	'65	'41	'62	'81
	'41	'20	'82	'06	'65	'41	'64	'82
	'44	'19	'88	'10	'68	'40	'60	'82
	'42	'20	'86	'06	'65	'43	'60	'80
	'44	'20	'85	'04	'66	'41	'62	'78
	'43	'21	'88	'03	'66	'44	'64	'80
	'46	'19	'84	'02	'68	'41	'61	'80
	'45	'20	'84	'02	'68	'41	'59	'76
	'44	'20	'85	'02	'66	'41	'60	'79
	'44	'19	'82	'01	'67	'40	'61	'79
	'42	'21	'83	'04	'64	'40	'58	'82
	'41	'19	'84	'00	'69	'40	'62	'79
	'41	'20	'84	'02	'66	'40	'60	'82
Corresponding Mean Observed Times at	$h\ m\ s$ 7 22 12	$h\ m\ s$ 7 24 50	$h\ m\ s$ 7 26 11	$h\ m\ s$ 7 23 46	$h\ m\ s$ 8 28 49	$h\ m\ s$ 8 32 5	$h\ m\ s$ 8 33 12	$h\ m\ s$ 8 30 38
	$s$ +0'431	$s$ +0'201	$s$ +0'838	$s$ +0'035	$s$ +0'660	$s$ +0'410	$s$ +0'611	$s$ +0'801
	$h\ m\ s$ 7 0 43	$h\ m\ s$ 7 3 24	$h\ m\ s$ 7 4 43	$h\ m\ s$ 7 2 20	$h\ m\ s$ 8 7 19	$h\ m\ s$ 8 10 38	$h\ m\ s$ 8 11 43	$h\ m\ s$ 8 9 12
	$s$ +0'431	$s$ +0'201			$s$ +0'660	$s$ +0'410		
Difference	$m\ s$ 21 28'569	$m\ s$ 21 25'799	$m\ s$ 21 28'838	$m\ s$ 21 26'035	$m\ s$ 21 29'340	$m\ s$ 21 26'590	$m\ s$ 21 29'611	$m\ s$ 21 26'801

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1882 February 8	<i>s</i> 12' 29	<i>s</i> 2' 10	<i>s</i> 39' 95	<i>s</i> 39' 87	<i>s</i> 22' 70	<i>s</i> 28' 50	<i>s</i> 13' 55	<i>s</i> 40' 44
	' 30	' 10	' 93	' 83	' 70	' 48	' 54	' 49
	' 29	' 14	' 92	' 86	' 70	' 49	' 55	' 48
	' 29	' 11	' 95	' 88	' 70	' 50	' 55	' 49
	' 29	' 11	' 94	' 88	' 70	' 50	' 56	' 49
	' 27	' 10	' 95	' 88	' 71	' 50	' 55	' 49
	' 28	' 10	' 94	' 88	' 70	' 48	' 55	' 48
	' 28	' 09	' 95	' 86	' 69	' 50	' 55	' 49
	' 27	' 08	' 91	' 89	' 68	' 50	' 54	' 49
	' 27	' 10	' 96	' 89	' 67	' 50	' 56	' 49
	' 28	' 10	' 90	' 85	' 65	' 51	' 54	' 49
	' 29	' 10	' 95	' 83	' 65	' 50	' 55	' 50
	' 28	' 13	' 92	' 87	' 64	' 50	' 53	' 49
	' 30	' 10	' 96	' 89	' 69	' 50	' 53	' 50
	' 30	' 10	' 91	' 89	' 70	' 49	' 52	' 49
	' 30	' 14	' 95	' 88	' 72	' 48	' 54	' 50
	' 29	' 13	' 93	' 88	' 70	' 49	' 51	' 49
	' 29	' 11	' 96	' 88	' 70	' 48	' 52	' 49
	' 29	' 10	' 95	' 89	' 70	' 49	' 51	' 48
	' 30	' 10	' 98	' 89	' 69	' 48	' 52	' 49
Corresponding Mean Observed Times at	<i>h m s</i> 8 50 37	<i>h m s</i> 8 53 24	<i>h m s</i> 8 51 49	<i>h m s</i> 8 54 49	<i>h m s</i> 9 51 47	<i>h m s</i> 9 54 50	<i>h m s</i> 9 53 23	<i>h m s</i> 9 56 50
			<i>s</i> + 0' 941	<i>s</i> + 0' 873			<i>s</i> + 0' 539	<i>s</i> + 0' 487
	<i>h m s</i> 8 34 22	<i>h m s</i> 8 37 12	<i>h m s</i> 8 35 38	<i>h m s</i> 8 38 35	<i>h m s</i> 9 35 32	<i>h m s</i> 9 38 38	<i>h m s</i> 9 37 12	<i>h m s</i> 9 40 36
	<i>s</i> + 0' 288	<i>s</i> + 0' 107			<i>s</i> + 0' 690	<i>s</i> + 0' 493		
Difference	<i>m s</i> 16 14' 712	<i>m s</i> 16 11' 893	<i>m s</i> 16 11' 941	<i>m s</i> 16 14' 873	<i>m s</i> 16 14' 310	<i>m s</i> 16 11' 507	<i>m s</i> 16 11' 539	<i>m s</i> 16 14' 487

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1882 February 9	$s$ 1'81	$s$ 32'66	$s$ 5'40	$s$ 40'30	$s$ 25'30	$s$ 39'10	$s$ 4'95	$s$ 39'89
	'80	'70	'40	'30	'28	'10	'98	'88
	'83	'68	'40	'30	'28	'10	'95	'89
	'83	'66	'38	'30	'30	'11	'97	'89
	'83	'66	'39	'30	'30	'10	'94	'89
	'83	'69	'37	'30	'29	'10	'97	'90
	'82	'70	'38	'30	'29	'10	'96	'89
	'86	'69	'38	'30	'30	'10	'98	'89
	'85	'68	'39	'30	'30	'10	'96	'89
	'88	'69	'38	'30	'30	'10	'99	'90
	'86	'69	'39	'30	'30	'10	'96	'90
	'82	'70	'37	'30	'28	'10	'96	'90
	'86	'67	'38	'30	'29	'09	'96	'90
	'80	'66	'38	'30	'28	'09	'96	'90
	'81	'61	'37	'30	'30	'09	'95	'90
	'81	'62	'38	'30	'28	'09	'96	'90
	'81	'62	'40	'30	'28	'08	'94	'90
	'85	'62	'38	'30	'26	'09	'93	'90
	'86	'60	'37	'30	'26	'09	'93	'90
	'86	'64	'37	'30	'28	'09	'93	'89
Corresponding Mean Observed Times at	$h\ m\ s$ 8 50 17	$h\ m\ s$ 8 52 45	$h\ m\ s$ 8 51 15	$h\ m\ s$ 8 54 50	$h\ m\ s$ 9 50 40	$h\ m\ s$ 9 53 51	$h\ m\ s$ 9 52 14	$h\ m\ s$ 9 54 49
	$s$ +0'834	$s$ +0'662	$s$ +0'383	$s$ +0'300	$s$ +0'288	$s$ +0'096	$s$ +0'956	$s$ +0'895
	$h\ m\ s$ 8 34 11	$h\ m\ s$ 8 36 42	$h\ m\ s$ 8 35 13	$h\ m\ s$ 8 38 45	$h\ m\ s$ 9 34 35	$h\ m\ s$ 9 37 49	$h\ m\ s$ 9 36 13	$h\ m\ s$ 9 38 45
	$s$ +0'834	$s$ +0'662			$s$ +0'288	$s$ +0'096		
Difference	$m\ s$ 16 5'166	$m\ s$ 16 2'338	$m\ s$ 16 2'383	$m\ s$ 16 5'300	$m\ s$ 16 4'712	$m\ s$ 16 1'904	$m\ s$ 16 1'956	$m\ s$ 16 4'895

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 February 10	s 5' 31	s 8' 20	s 39' 89	s 35' 80	s 6' 70	s 37' 53	s 22' 48	s 5' 44
	' 30	' 20	' 88	' 79	' 71	' 53	' 49	' 43
	' 30	' 18	' 88	' 80	' 80	' 55	' 49	' 43
	' 30	' 20	' 88	' 80	' 74	' 57	' 49	' 41
	' 32	' 20	' 88	' 80	' 74	' 57	' 48	' 41
	' 35	' 20	' 88	' 80	' 72	' 57	' 49	' 41
	' 35	' 20	' 88	' 80	' 76	' 56	' 48	' 42
	' 35	' 20	' 87	' 80	' 76	' 55	' 49	' 42
	' 34	' 20	' 88	' 80	' 75	' 57	' 49	' 41
	' 38	' 20	' 87	' 80	' 73	' 54	' 49	' 41
	' 38	' 20	' 88	' 80	' 74	' 54	' 48	' 41
	' 39	' 20	' 89	' 80	' 74	' 53	' 49	' 42
	' 38	' 19	' 89	' 80	' 73	' 50	' 49	' 40
	' 39	' 20	' 89	' 80	' 72	' 51	' 49	' 40
	' 36	' 20	' 88	' 80	' 74	' 55	' 49	' 40
	' 39	' 20	' 89	' 80	' 75	' 53	' 49	' 41
	' 36	' 20	' 89	' 80	' 77	' 53	' 49	' 40
	' 36	' 20	' 89	' 80	' 75	' 51	' 49	' 40
	' 38	' 20	' 90	' 80	' 75	' 53	' 49	' 40
	' 38	' 20	' 89	' 80	' 74	' 51	' 49	' 41
Corresponding Mean Observed Times at	h m s 8 48 11	h m s 8 51 11	h m s 8 49 49	h m s 8 52 45	h m s 9 49 12	h m s 9 51 40	h m s 9 50 32	h m s 9 53 15
	s +0' 354	s +0' 198	s +0' 884	s +0' 800	s +0' 742	s +0' 539	s +0' 488	s +0' 412
	h m s 8 32 15	h m s 8 35 18	h m s 8 33 57	h m s 8 36 50	h m s 9 33 16	h m s 9 35 47	h m s 9 34 40	h m s 9 37 20
	s +0' 354	s +0' 198			s +0' 742	s +0' 539		
Difference	m s 15 55' 646	m s 15 52' 802	m s 15 52' 884	m s 15 55' 800	m s 15 55' 258	m s 15 52' 461	m s 15 52' 488	m s 15 55' 412



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 February 13	s 39' 18	s 11' 99	s 41' 02	s 4' 98	s 1' 64	s 39' 49	s 39' 59	s 5' 52
	' 20	' 98	' 01	' 97	' 62	' 48	' 59	' 52
	' 18	' 00	' 01	' 99	' 61	' 48	' 58	' 52
	' 19	' 00	' 00	' 96	' 66	' 46	' 59	' 55
	' 20	' 00	' 00	' 99	' 65	' 48	' 59	' 53
	' 20	' 00	' 00	' 96	' 66	' 48	' 59	' 54
	' 20	' 00	' 01	' 98	' 63	' 50	' 59	' 51
	' 21	' 02	' 00	' 96	' 63	' 44	' 58	' 55
	' 20	' 01	' 00	' 96	' 65	' 48	' 58	' 52
	' 23	' 02	' 00	' 97	' 67	' 46	' 58	' 53
	' 20	' 02	' 00	' 99	' 63	' 48	' 58	' 53
	' 20	' 00	' 00	' 97	' 65	' 48	' 58	' 55
	' 20	' 00	' 00	' 99	' 63	' 48	' 58	' 54
	' 21	' 00	' 00	' 97	' 66	' 46	' 59	' 54
	' 20	' 00	' 01	' 99	' 65	' 47	' 60	' 53
	' 20	' 00	' 02	' 97	' 63	' 48	' 60	' 55
	' 20	' 98	' 02	' 98	' 61	' 46	' 60	' 54
	' 20	' 99	' 01	' 98	' 64	' 43	' 59	' 55
	' 20	' 99	' 01	' 99	' 62	' 42	' 59	' 50
	' 20	' 99	' 01	' 97	' 63	' 43	' 58	' 53
Corresponding Mean Observed Times at	h m s 8 46 19	h m s 8 48 49	h m s 8 47 51	h m s 8 50 14	h m s 9 48 41	h m s 9 51 16	h m s 9 49 49	h m s 9 53 15
	s +0' 200	s +0' 000	s +0' 007	s +0' 976	s +0' 639	s +0' 467	s +0' 588	s +0' 532
	h m s 8 30 49	h m s 8 33 22	h m s 8 32 24	h m s 8 34 45	h m s 9 33 11	h m s 9 35 49	h m s 9 34 23	h m s 9 3 46
	s +0' 200	s +0' 000						
Difference	m s 15 29' 800	m s 15 27' 000	m s 15 27' 007	m s 15 29' 976	m s 15 29' 361	m s 15 26' 533	m s 15 26' 588	m s 15 29' 532

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1882 February 14	<i>s</i> 12 <sup>h</sup> 00	<i>s</i> 20 <sup>h</sup> 84	<i>s</i> 39 <sup>h</sup> 14	<i>s</i> 39 <sup>h</sup> 10	<i>s</i> 1 <sup>h</sup> 43	<i>s</i> 35 <sup>h</sup> 30	<i>s</i> 45 <sup>h</sup> 70	<i>s</i> 39 <sup>h</sup> 69
	'03	'84	'15	'10	'43	'30	'72	'70
	'06	'84	'13	'10	'43	'28	'73	'70
	'06	'82	'12	'10	'46	'26	'73	'69
	'06	'83	'14	'10	'44	'27	'72	'68
	'05	'84	'15	'10	'48	'26	'72	'69
	'05	'85	'14	'10	'47	'28	'73	'69
	'08	'84	'15	'10	'43	'25	'72	'69
	'09	'83	'16	'10	'43	'24	'72	'69
	'08	'86	'16	'10	'45	'26	'72	'70
	'09	'85	'16	'10	'44	'22	'74	'69
	'08	'87	'18	'10	'44	'24	'73	'69
	'09	'85	'16	'10	'44	'23	'74	'69
	'08	'84	'17	'10	'45	'24	'74	'69
	'02	'85	'17	'10	'44	'28	'76	'68
	'02	'84	'17	'10	'45	'29	'76	'69
	'02	'86	'17	'10	'46	'28	'76	'69
	'02	'85	'17	'10	'44	'30	'77	'70
	'00	'86	'17	'10	'44	'30	'75	'70
	'00	'86	'19	'10	'46	'30	'74	'70
Corresponding Mean Observed Times at	<i>h m s</i> 8 44 42	<i>h m s</i> 8 47 48	<i>h m s</i> 8 46 49	<i>h m s</i> 8 49 49	<i>h m s</i> 9 48 31	<i>h m s</i> 9 51 2	<i>h m s</i> 9 49 55	<i>h m s</i> 9 52 49
	<i>s</i> +0 <sup>h</sup> 049	<i>s</i> +0 <sup>h</sup> 846	<i>s</i> +0 <sup>h</sup> 158	<i>s</i> +0 <sup>h</sup> 100	<i>s</i> +0 <sup>h</sup> 446	<i>s</i> +0 <sup>h</sup> 260	<i>s</i> +0 <sup>h</sup> 735	<i>s</i> +0 <sup>h</sup> 692
	<i>h m s</i> 8 29 22	<i>h m s</i> 8 32 30	<i>h m s</i> 8 31 32	<i>h m s</i> 8 34 29	<i>h m s</i> 9 33 11	<i>h m s</i> 9 35 45	<i>h m s</i> 9 34 39	<i>h m s</i> 9 37 30
	<i>s</i> +0 <sup>h</sup> 049	<i>s</i> +0 <sup>h</sup> 846						
Difference	<i>m s</i> 15 19 <sup>h</sup> 951	<i>m s</i> 15 17 <sup>h</sup> 154	<i>m s</i> 15 17 <sup>h</sup> 158	<i>m s</i> 15 20 <sup>h</sup> 100	<i>m s</i> 15 19 <sup>h</sup> 554	<i>m s</i> 15 16 <sup>h</sup> 731	<i>m s</i> 15 16 <sup>h</sup> 735	<i>m s</i> 15 19 <sup>h</sup> 692

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1882 February 16	<i>s</i> 36'69	<i>s</i> 6'50	<i>s</i> 36'45	<i>s</i> 5'50	<i>s</i> 36'95	<i>s</i> 35'90	<i>s</i> 4'13	<i>s</i> 5'13
	'70	'50	'45	'50	'93	'89	'16	'16
	'70	'50	'45	'48	'95	'90	'16	'12
	'70	'51	'47	'48	'93	'90	'18	'12
	'69	'51	'46	'48	'97	'90	'16	'15
	'70	'57	'47	'48	'95	'90	'16	'14
	'70	'53	'46	'47	'97	'90	'14	'13
	'70	'54	'47	'48	'96	'90	'15	'12
	'70	'55	'47	'46	'98	'90	'14	'13
	'70	'56	'48	'46	'00	'89	'13	'12
	'70	'56	'47	'46	'00	'86	'11	'13
	'70	'57	'47	'46	'98	'84	'14	'13
	'70	'53	'46	'46	'99	'83	'15	'11
	'70	'54	'49	'48	'01	'82	'16	'11
	'70	'55	'48	'43	'00	'83	'13	'11
	'71	'55	'48	'43	'00	'82	'16	'11
	'73	'52	'48	'43	'98	'82	'12	'10
	'73	'52	'49	'46	'97	'82	'15	'12
	'72	'51	'46	'44	'98	'84	'11	'11
	'71	'54	'48	'46	'99	'83	'12	'12
Corresponding Mean Observed Times at	<i>h m s</i> 8 45 50	<i>h m s</i> 8 48 17	<i>h m s</i> 8 46 46	<i>h m s</i> 8 50 15	<i>h m s</i> 9 47 50	<i>h m s</i> 9 50 46	<i>h m s</i> 9 49 14	<i>h m s</i> 9 52 15
	<i>s</i> +0'704	<i>s</i> +0'533	<i>s</i> +0'470	<i>s</i> +0'465	<i>s</i> +0'975	<i>s</i> +0'864	<i>s</i> +0'143	<i>s</i> +0'124
	<i>h m s</i> 8 30 46	<i>h m s</i> 8 33 16	<i>h m s</i> 8 31 46	<i>h m s</i> 8 35 12	<i>h m s</i> 9 32 46	<i>h m s</i> 9 35 45	<i>h m s</i> 9 34 14	<i>h m s</i> 9 37 12
	<i>s</i> +0'704	<i>s</i> +0'533			<i>s</i> +0'975	<i>s</i> +0'864		
Difference	<i>m s</i> 15 3'296	<i>m s</i> 15 0'467	<i>m s</i> 15 0'470	<i>m s</i> 15 3'465	<i>m s</i> 15 3'025	<i>m s</i> 15 0'136	<i>m s</i> 15 0'143	<i>m s</i> 15 3'124

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 February 25	$s$ 37'06	$s$ 30'79	$s$ 42'80	$s$ 40'76	$s$ 0'41	$s$ 4'11	$s$ 1'35	$s$ 6'36
	'07	'79	'78	'80	'40	'10	'33	'36
	'09	'78	'81	'80	'39	'11	'33	'35
	'05	'77	'78	'73	'38	'11	'38	'44
	'05	'79	'80	'85	'35	'10	'34	'46
	'06	'81	'74	'75	'39	'11	'33	'45
	'11	'80	'79	'83	'38	'13	'33	'39
	'10	'79	'80	'85	'36	'11	'30	'40
	'10	'79	'80	'78	'36	'12	'31	'38
	'09	'80	'79	'77	'38	'12	'31	'42
	'09	'81	'80	'75	'38	'14	'33	'40
	'10	'81	'80	'73	'40	'16	'35	'40
	'08	'81	'71	'77	'39	'15	'34	'39
	'08	'80	'71	'80	'40	'13	'30	'33
	'06	'80	'80	'71	'40	'14	'31	'40
	'07	'80	'73	'76	'39	'15	'33	'40
	'07	'79	'80	'73	'40	'16	'32	'48
	'07	'79	'80	'75	'41	'13	'31	'38
	'07	'80	'76	'75	'40	'15	'30	'40
	'06	'80	'80	'74	'41	'14	'30	'40
Corresponding Mean Observed Times at	$h\ m\ s$ 9 41 24	$h\ m\ s$ 9 43 15	$h\ m\ s$ 9 45 52	$h\ m\ s$ 9 42 50	$h\ m\ s$ 10 47 47	$h\ m\ s$ 10 50 48	$h\ m\ s$ 10 55 11	$h\ m\ s$ 10 49 16
			$s$ +0'785	$s$ +0'771			$s$ +0'325	$s$ +0'400
	$h\ m\ s$ 9 26 47	$h\ m\ s$ 9 28 40	$h\ m\ s$ 9 31 16	$h\ m\ s$ 9 28 16	$h\ m\ s$ 10 33 10	$h\ m\ s$ 10 36 14	$h\ m\ s$ 10 40 35	$h\ m\ s$ 10 34 42
	$s$ +0'077	$s$ +0'796			$s$ +0'389	$s$ +0'129		
Difference	$m\ s$ 14 36'923	$m\ s$ 14 34'204	$m\ s$ 14 36'785	$m\ s$ 14 34'771	$m\ s$ 14 36'611	$m\ s$ 14 33'871	$m\ s$ 14 36'325	$m\ s$ 14 34'400

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 March 1	$s$ 49' 14	$s$ 5' 83	$s$ 38' 61	$s$ 8' 62	$s$ 1' 36	$s$ 14' 20	$s$ 18' 37	$s$ 16' 35
	' 11	' 81	' 61	' 67	' 34	' 19	' 38	' 36
	' 11	' 85	' 61	' 65	' 35	' 20	' 36	' 37
	' 14	' 80	' 63	' 65	' 35	' 19	' 35	' 36
	' 14	' 80	' 63	' 61	' 38	' 20	' 35	' 34
	' 12	' 80	' 62	' 62	' 36	' 16	' 35	' 35
	' 14	' 84	' 61	' 61	' 39	' 15	' 35	' 34
	' 15	' 82	' 60	' 66	' 37	' 11	' 35	' 35
	' 14	' 81	' 60	' 64	' 40	' 14	' 36	' 36
	' 11	' 81	' 60	' 61	' 38	' 16	' 35	' 34
	' 11	' 84	' 64	' 62	' 40	' 15	' 35	' 34
	' 13	' 82	' 63	' 63	' 38	' 15	' 35	' 31
	' 15	' 85	' 62	' 61	' 39	' 15	' 34	' 32
	' 11	' 85	' 65	' 63	' 37	' 16	' 37	' 33
	' 13	' 86	' 64	' 60	' 39	' 18	' 32	' 34
	' 12	' 88	' 63	' 61	' 36	' 16	' 35	' 33
	' 11	' 89	' 64	' 60	' 35	' 16	' 35	' 31
	' 11	' 89	' 65	' 63	' 35	' 14	' 35	' 33
	' 11	' 89	' 65	' 62	' 36	' 17	' 35	' 33
	' 10	' 88	' 65	' 61	' 37	' 18	' 35	' 35
Corresponding Mean Observed Times at	$h\ m\ s$ 9 40 8	$h\ m\ s$ 9 43 22	$h\ m\ s$ 9 44 48	$h\ m\ s$ 9 42 18	$h\ m\ s$ 10 47 20	$h\ m\ s$ 10 49 30	$h\ m\ s$ 10 51 28	$h\ m\ s$ 10 48 26
	$s$ +0' 124	$s$ +0' 841	$s$ +0' 626	$s$ +0' 625	$s$ +0' 365	$s$ +0' 165	$s$ +0' 353	$s$ +0' 341
	$h\ m\ s$ 9 25 59	$h\ m\ s$ 9 29 15	$h\ m\ s$ 9 30 40	$h\ m\ s$ 9 28 12	$h\ m\ s$ 10 33 11	$h\ m\ s$ 10 35 24	$h\ m\ s$ 10 37 20	$h\ m\ s$ 10 34 20
	$s$ +0' 124	$s$ +0' 841			$s$ +0' 365	$s$ +0' 165		
Difference	$m\ s$ 14 8' 876	$m\ s$ 14 6' 159	$m\ s$ 14 8' 626	$m\ s$ 14 6' 625	$m\ s$ 14 8' 635	$m\ s$ 14 5' 835	$m\ s$ 14 8' 353	$m\ s$ 14 6' 341

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1882	s	s	s	s	s	s	s	s
March 2	6.96	15.66	4.82	5.81	42.16	4.95	40.55	38.53
	.96	.67	.83	.85	.18	.96	.53	.52
	.96	.68	.83	.83	.19	.95	.54	.50
	.95	.69	.83	.86	.18	.95	.53	.54
	.95	.70	.83	.83	.18	.94	.51	.51
	.96	.69	.85	.82	.17	.94	.51	.52
	.96	.70	.83	.80	.16	.93	.51	.52
	.97	.70	.81	.82	.19	.95	.53	.55
	.96	.70	.84	.84	.18	.95	.53	.53
	.96	.70	.81	.80	.16	.97	.54	.53
	.96	.70	.81	.82	.18	.95	.51	.51
	.96	.69	.80	.82	.19	.96	.55	.53
	.96	.70	.81	.89	.18	.96	.54	.51
	.96	.66	.80	.80	.17	.99	.55	.53
	.96	.68	.79	.81	.16	.96	.52	.53
	.96	.68	.83	.80	.16	.97	.55	.51
	.98	.68	.80	.83	.16	.95	.54	.52
	.98	.70	.80	.83	.17	.96	.54	.55
	.97	.70	.80	.84	.15	.98	.54	.50
	.98	.68	.82	.80	.16	.98	.54	.52
Corresponding Mean Observed Times at	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s
	E 9 40 20	9 43 26	9 45 14	9 42 15	10 46 55	10 50 15	10 51 50	10 48 48
			s +0.817	s +0.825			s +0.533	s +0.523
	h m s	h m s	h m s	h m s	h m s	h m s	h m s	h m s
	W 9 26 16	9 29 25	9 31 12	9 28 15	10 32 52	10 36 14	10 37 48	10 34 48
	s +0.963	s +0.688			s +0.172	s +0.958		
Difference	m s 14 3.037	m s 14 0.312	m s 14 2.817	m s 14 0.825	m s 14 2.828	m s 14 0.042	m s 14 2.533	m s 14 0.523

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1882 March 3	s 37'75	s 30'54	s 17'05	s 33'01	s 18'05	s 10'76	s 6'76	s 19'75
	'75	'56	'03	'03	'09	'76	'75	'76
	'75	'54	'05	'01	'05	'75	'77	'74
	'74	'52	'01	'04	'05	'79	'77	'74
	'74	'50	'02	'03	'09	'78	'75	'74
	'76	'50	'04	'04	'03	'78	'78	'75
	'76	'53	'03	'03	'01	'76	'75	'73
	'76	'52	'05	'03	'00	'75	'79	'70
	'75	'50	'04	'03	'01	'79	'74	'75
	'76	'50	'01	'06	'02	'73	'75	'73
	'75	'50	'04	'04	'02	'76	'75	'75
	'76	'52	'05	'04	'01	'74	'75	'75
	'75	'51	'00	'05	'03	'79	'75	'75
	'74	'50	'05	'04	'05	'75	'75	'74
	'72	'50	'06	'05	'05	'79	'74	'75
	'74	'52	'02	'04	'07	'78	'75	'73
	'71	'50	'01	'04		'78	'75	'75
	'77	'50	'01	'04		'75	'75	'72
	'70	'49	'01	'04		'79	'75	'73
	'76	'49	'08	'04		'80	'75	'73
Corresponding Mean Observed Times at	h m s 9 40 45	h m s 9 43 35	h m s 9 45 27 s +0'033	h m s 9 42 43 s +0'037	h m s 10 48 25	h m s 10 51 15	h m s 10 52 16 s +0'755	h m s 10 49 29 s +0'740
	h m s 9 26 47 s +0'746	h m s 9 29 40 s +0'512	h m s 9 31 30	h m s 9 28 48	h m s 10 34 28 s +0'040	h m s 10 37 20 s +0'769	h m s 10 38 20	h m s 10 35 35
Difference	m s 13 57'254	m s 13 54'488	m s 13 57'033	m s 13 55'037	m s 13 56'960	m s 13 54'231	m s 13 56'755	m s 13 54'740

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 March 4	$s$ 48'40	$s$ 43'11	$s$ 4'40	$s$ 25'39	$s$ 11'76	$s$ 51'55	$s$ 53'98	$s$ 21'99
	'38	'11	'40	'39	'79	'54	'99	'99
	'39	'10	'40	'38	'79	'55	'98	'99
	'35	'11	'40	'39	'80	'55	'00	'97
	'39	'11	'40	'38	'79	'54	'98	'97
	'36	'09	'39	'39	'80	'53	'99	'97
	'37	'10	'40	'38	'80	'54	'99	'97
	'35	'10	'37	'40	'81	'55	'00	'96
	'37	'10	'40	'40	'81	'54	'98	'97
	'35	'10	'39	'40	'82	'54	'00	'97
	'35	'11	'38	'39	'80	'51	'99	'98
	'35	'11	'36	'40	'81	'53	'98	'99
	'36	'12	'38	'40	'81	'53	'96	'98
	'35	'11	'39	'40	'84	'53	'96	'99
	'35	'10	'40	'39	'80	'52	'96	'99
	'33	'10	'38	'40	'80	'54	'97	'99
	'35	'11	'41	'39	'80	'55	'97	'99
	'36	'10	'39	'38	'80	'52	'96	'99
	'38	'10	'40	'39	'79	'54	'95	'99
	'39	'10	'39	'40	'81	'55	'96	'98
Corresponding Mean Observed Times at	$h\ m\ s$ 9 40 48	$h\ m\ s$ 9 43 40	$h\ m\ s$ 9 45 14	$h\ m\ s$ 9 42 35	$h\ m\ s$ 10 45 11	$h\ m\ s$ 10 49 48	$h\ m\ s$ 10 51 3	$h\ m\ s$ 10 47 31
	$s$ +0'364	$s$ +0'105	$s$ +0'392	$s$ +0'392	$s$ +0'803	$s$ +0'538	$s$ +0'978	$s$ +0'981
	$h\ m\ s$ 9 26 58	$h\ m\ s$ 9 29 53	$h\ m\ s$ 9 31 25	$h\ m\ s$ 9 28 48	$h\ m\ s$ 10 31 21	$h\ m\ s$ 10 36 1	$h\ m\ s$ 10 37 15	$h\ m\ s$ 10 33 45
	$s$ +0'364	$s$ +0'105			$s$ +0'803	$s$ +0'538		
Difference	$m\ s$ 13 49'636	$m\ s$ 13 46'895	$m\ s$ 13 49'392	$m\ s$ 13 47'392	$m\ s$ 13 49'197	$m\ s$ 13 46'462	$m\ s$ 13 48'978	$m\ s$ 13 46'981



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 March 5	$s$ 54' 34	$s$ 4' 17	$s$ 41' 45	$s$ 56' 44	$s$ 29' 71	$s$ 45' 43	$s$ 14' 03	$s$ 40' 05
	'34	'16	'45	'45	'70	'45	'04	'05
	'33	'18	'45	'45	'70	'44	'03	'03
	'38	'19	'44	'43	'70	'45	'04	'03
	'38	'20	'44	'43	'69	'46	'02	'04
	'39	'19	'45	'42	'70	'45	'04	'01
	'31	'16	'43	'40	'71	'48	'02	'03
	'32	'19	'45	'45	'71	'48	'05	'03
	'32	'18	'42	'41	'72	'49	'03	'05
	'33	'15	'43	'45	'71	'50	'03	'04
	'32	'16	'43	'41	'74	'49	'02	'02
	'32	'14	'44	'43	'74	'50	'04	'05
	'30	'11	'41	'41	'76	'49	'04	'05
	'32	'11	'42	'44	'75	'49	'06	'04
	'34	'10	'42	'42	'77	'49	'05	'04
	'30	'10	'42	'44	'75	'45	'05	'02
	'30	'10	'44	'41	'76	'42	'04	'02
	'32	'09	'44	'43	'74	'42	'05	'04
	'33	'11	'44	'41	'73	'41	'04	'03
	'33	'11	'43	'45	'72	'42	'04	'02
Corresponding Mean Observed Times at	$h\ m\ s$ 9 40 45	$h\ m\ s$ 9 43 52	$h\ m\ s$ 9 44 51	$h\ m\ s$ 9 42 6	$h\ m\ s$ 10 46 20	$h\ m\ s$ 10 48 33	$h\ m\ s$ 10 50 24	$h\ m\ s$ 10 47 50
	$s$ +0'331	$s$ +0'145	$s$ +0'435	$s$ +0'429	$s$ +0'726	$s$ +0'461	$s$ +0'038	$s$ +0'035
	$h\ m\ s$ 9 27 4	$h\ m\ s$ 9 30 14	$h\ m\ s$ 9 31 11	$h\ m\ s$ 9 28 28	$h\ m\ s$ 10 32 39	$h\ m\ s$ 10 34 55	$h\ m\ s$ 10 36 44	$h\ m\ s$ 10 34 12
Difference	$m\ s$ 13 40'669	$m\ s$ 13 37'855	$m\ s$ 13 40'435	$m\ s$ 13 38'429	$m\ s$ 13 40'274	$m\ s$ 13 37'539	$m\ s$ 13 40'038	$m\ s$ 13 38'035

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1882 March 17	$s$ 21'69	$s$ 10'80	$s$ 37'29	$s$ 15'31	$s$ 35'09	$s$ 35'20	$s$ 17'90	$s$ 56'89
.	'69	'79	'30	'30	'08	'21	'91	'90
	'69	'80	'30	'30	'08	'21	'92	'90
	'69	'80	'30	'30	'09	'20	'94	'90
	'69	'80	'30	'31	'10	'20	'93	'90
	'69	'80	'30	'32	'11	'22	'90	'90
	'68	'80	'30	'30	'12	'20	'90	'91
	'68	'81	'30	'30	'10	'20	'91	'90
	'69	'82	'31	'29	'10	'19	'91	'91
	'66	'81	'31	'31	'10	'20	'90	'91
	'68	'82	'30	'30	'09	'19	'90	'91
	'68	'83	'31	'30	'04	'19	'89	'90
	'69	'85	'30	'31	'04	'19	'90	'91
	'70	'85	'30	'30	'03	'19	'90	'90
	'66	'85	'30	'29	'02	'20	'90	'91
	'71	'85	'32	'29	'02	'20	'90	'91
	'70	'84	'31	'29	'02	'20	'90	'90
	'73	'85	'32	'30	'02	'20	'90	'90
	'70	'85	'30	'29	'04	'20	'90	'90
	'71	'84	'30	'30	'02	'20	'89	'91
Corresponding Mean Observed Times at	$h\ m\ s$ 10 40 46	$h\ m\ s$ 10 43 33	$h\ m\ s$ 10 45 47 $s$ +0'304	$h\ m\ s$ 10 42 25 $s$ +0'301	$h\ m\ s$ 11 42 59	$h\ m\ s$ 11 45 57	$h\ m\ s$ 11 47 27 $s$ +0'905	$h\ m\ s$ 11 45 6 $s$ +0'904
	$h\ m\ s$ 10 39 31 $s$ +0'691	$h\ m\ s$ 10 42 20 $s$ +0'823	$h\ m\ s$ 10 44 33	$h\ m\ s$ 10 41 13	$h\ m\ s$ 11 41 45 $s$ +0'066	$h\ m\ s$ 11 44 45 $s$ +0'200	$h\ m\ s$ 11 46 14	$h\ m\ s$ 11 43 55
Difference	$m\ s$ 1 14'309	$m\ s$ 1 12'177	$m\ s$ 1 14'304	$m\ s$ 1 12'301	$m\ s$ 1 13'934	$m\ s$ 1 11'800	$m\ s$ 1 13'905	$m\ s$ 1 11'904

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1882 March 19	s 45'43	s 30'69	s 2'45	s 3'44	s 15'90	s 20'07	s 1'12	s 4'04
	'45	'69	'47	'42	'94	'10	'10	'06
	'45	'70	'45	'43	'90	'09	'10	'05
	'45	'70	'46	'43	'94	'11	'08	'06
	'44	'70	'45	'44	'90	'09	'10	'04
	'44	'70	'48	'43	'92	'10	'08	'06
	'44	'70	'45	'44	'90	'09	'09	'04
	'46	'69	'47	'45	'94	'09	'08	'05
	'46	'70	'46	'44	'91	'07	'10	'02
	'47	'69	'45	'44	'92	'07	'07	'04
	'45	'70	'46	'43	'91	'06	'11	'03
	'48	'69	'46	'44	'95	'10	'09	'05
	'50	'69	'45	'44	'95	'09	'10	'04
	'50	'68	'45	'42	'95	'10	'08	'04
	'50	'69	'45	'44	'92	'11	'10	'04
	'50	'68	'46	'44	'94	'12	'09	'05
	'50	'68	'45	'44	'92	'12	'09	'05
	'52	'69	'46	'43	'92	'11	'08	'05
	'49	'70	'45	'44	'91	'11	'09	'05
	'46	'68	'45	'44	'91	'10	'06	'05
Corresponding Mean Observed Times at	h m s 10 40 51	h m s 10 43 34	h m s 10 45 12 s +0'457	h m s 10 42 13 s +0'436	h m s 11 43 21	h m s 11 45 23	h m s 11 47 11 s +0'091	h m s 11 44 14 s +0'046
	h m s 10 39 55 s +0'470	h m s 10 42 40 s +0'692	h m s 10 44 17	h m s 10 41 20	h m s 11 42 25 s +0'923	h m s 11 44 30 s +0'095	h m s 11 46 16	h m s 11 43 21
Difference	m s 0 55'530	m s 0 53'308	m s 0 55'457	m s 0 53'436	m s 0 55'077	m s 0 52'905	m s 0 55'091	m s 0 53'046

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1882 March 22	<i>s</i> 50'94	<i>s</i> 5'11	<i>s</i> 4'05	<i>s</i> 55'04	<i>s</i> 41'28	<i>s</i> 40'56	<i>s</i> 35'64	<i>s</i> 29'65
	'95	'10	'05	'04	'28	'56	'67	'68
	'94	'11	'04	'04	'30	'59	'64	'66
	'95	'10	'06	'03	'29	'55	'67	'68
	'94	'11	'05	'06	'30	'55	'64	'65
	'96	'10	'05	'05	'30	'55	'68	'68
	'95	'10	'04	'05	'30	'55	'66	'65
	'94	'10	'06	'03	'29	'54	'69	'68
	'95	'12	'04	'03	'30	'55	'66	'65
	'94	'11	'07	'01	'29	'55	'69	'67
	'95	'12	'05	'04	'30	'56	'65	'65
	'94	'12	'07	'02	'30	'56	'67	'68
	'93	'12	'04	'06	'30	'55	'65	'65
	'93	'12	'04	'04	'29	'56	'69	'66
	'95	'14	'05	'05	'30	'54	'65	'65
	'95	'13	'05	'05	'29	'54	'65	'65
	'97	'14	'04	'05	'30	'55	'64	'64
	'97	'14	'05	'03	'29	'55	'65	'66
	'98	'14	'04	'05	'30	'55	'65	'63
	'96	'12	'05	'03	'29	'54	'66	'64
Corresponding Mean Observed Times at	<i>h m s</i> 10 40 30	<i>h m s</i> 10 42 42	<i>h m s</i> 10 44 14 <i>s</i> + 0'050	<i>h m s</i> 10 42 5 <i>s</i> + 0'040	<i>h m s</i> 11 42 20	<i>h m s</i> 11 45 17	<i>h m s</i> 11 46 45 <i>s</i> + 0'660	<i>h m s</i> 11 43 39 <i>s</i> + 0'658
	<i>h m s</i> 10 40 0 <i>s</i> + 0'950	<i>h m s</i> 10 42 15 <i>s</i> + 0'118	<i>h m s</i> 10 43 45	<i>h m s</i> 10 41 38	<i>h m s</i> 11 41 51 <i>s</i> + 0'295	<i>h m s</i> 11 44 50 <i>s</i> + 0'553	<i>h m s</i> 11 46 17	<i>h m s</i> 11 43 13
Difference	<i>m s</i> 0 29'050	<i>m s</i> 0 26'882	<i>m s</i> 0 29'050	<i>m s</i> 0 27'040	<i>m s</i> 0 28'705	<i>m s</i> 0 26'447	<i>m s</i> 0 28'660	<i>m s</i> 0 26'658

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1882 April 4	<i>s</i> 4'71	<i>s</i> 15'76	<i>s</i> 40'63	<i>s</i> 55'05			<i>s</i> 29'54	<i>s</i> 24'11
	'70	'76	'60	'05			'54	'11
	'70	'76	'64	'05			'55	'11
	'70	'76	'60	'05			'54	'11
	'71	'79	'66	'06			'56	'13
	'70	'78	'60	'05			'55	'12
	'70	'78	'60	'07			'56	'12
	'70	'77	'60	'06			'54	'15
	'71	'76	'61	'08			'56	'14
	'72	'78	'60	'05			'54	'13
	'70	'78	'61	'05			'56	'10
	'70	'78	'60	'05			'55	'11
	'70	'79	'62	'06			'55	'12
	'70	'79	'60	'05			'55	'11
	'70	'78	'61	'06			'55	'12
	'71	'78	'60	'05			'54	'10
	'71	'77	'60	'06			'55	'11
	'71	'79	'60	'05			'55	'10
	'72	'80	'60	'06			'53	'14
	'72	'80	'61	'08			'53	'11
Corresponding Mean Observed Times at	<i>h m s</i> 11 43 45	<i>h m s</i> 11 45 54	<i>h m s</i> 11 47 50	<i>h m s</i> 11 45 5			<i>h m s</i> 12 51 39	<i>h m s</i> 12 52 34
	<i>s</i> +0'706	<i>s</i> +0'778	<i>s</i> +0'610	<i>s</i> +0'057			<i>s</i> +0'547	<i>s</i> +0'118
	<i>h m s</i> 11 42 14	<i>h m s</i> 11 44 25	<i>h m s</i> 11 46 20	<i>h m s</i> 11 43 37			<i>h m s</i> 12 50 12	<i>h m s</i> 12 51 4
Difference	<i>m s</i> 1 30'294	<i>m s</i> 1 28'222	<i>m s</i> 1 30'610	<i>m s</i> 1 28'057			<i>m s</i> 1 27'547	<i>m s</i> 1 30'118

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q -	Q +
1882 April 5	s 38' 55	s 4' 82	s 38' 06	s 5' 70	s 32' 96	s 45' 20	s 51' 69	s 35' 35
	' 55	' 80	' 07	' 70	' 96	' 18	' 70	' 31
	' 54	' 82	' 06	' 70	' 95	' 18	' 69	' 31
	' 55	' 80	' 07	' 70	' 96	' 18	' 70	' 31
	' 54	' 83	' 08	' 71	' 96	' 20	' 70	' 32
	' 56	' 80	' 08	' 71	' 97	' 20	' 69	' 33
	' 55	' 82	' 08	' 70	' 96	' 20	' 70	' 31
	' 56	' 80	' 07	' 70	' 95	' 20	' 70	' 30
	' 55	' 82	' 07	' 70	' 97	' 22	' 69	' 30
	' 55	' 80	' 08	' 70	' 95	' 20	' 71	' 32
	' 53	' 83	' 08	' 70	' 96	' 21	' 70	' 33
	' 53	' 80	' 09	' 70	' 95	' 20	' 70	' 31
	' 55	' 83	' 08	' 71	' 98	' 22	' 70	' 31
	' 54	' 82	' 08	' 70	' 95	' 19	' 70	' 32
	' 52	' 84	' 07	' 70		' 20	' 70	' 31
	' 55	' 81	' 09	' 70		' 20	' 71	' 31
	' 53	' 83	' 09	' 71		' 19	' 71	' 31
	' 53	' 80	' 10	' 70		' 20	' 71	' 31
	' 54	' 83	' 09	' 70		' 19	' 71	' 31
	' 54	' 82	' 09	' 70		' 20	' 71	' 30
Corresponding Mean Observed Times at	E h m s 11 44 8	E h m s 11 46 32	E h m s 11 44 48	E h m s 11 48 15	E h m s 12 40 0	E h m s 12 42 12	E h m s 12 41 1	E h m s 12 43 45
			s +0' 079	s +0' 702			s +0' 701	s +0' 314
W	h m s 11 42 48	h m s 11 45 14	h m s 11 43 31	h m s 11 46 56	h m s 12 38 40	h m s 12 40 55	h m s 12 39 45	h m s 12 42 26
	s +0' 543	s +0' 816			s +0' 959	s +0' 198		
Difference	m s 1 19' 457	m s 1 17' 184	m s 1 17' 079	m s 1 19' 702	m s 1 19' 041	m s 1 16' 802	m s 1 16' 701	m s 1 19' 314

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1882 April 6	$s$ 59'96	$s$ 35'34	$s$ 30'65	$s$ 5'28	$s$ 28'33	$s$ 5'60	$s$ 45'28	$s$ 29'90
	'96	'35	'64	'29	'35	'61	'29	'91
	'95	'33	'64	'30	'36	'60	'29	'91
	'96	'32	'64	'30	'34	'61	'30	'90
	'96	'29	'64	'30	'36	'61	'29	'90
	'96	'29	'64	'26	'34	'64	'26	'90
	'95	'29	'64	'28	'35	'64	'28	'91
	'95	'28	'65	'30	'35	'63	'30	'90
	'93	'26	'64	'30	'35	'62	'29	'91
	'92	'27	'65	'26	'35	'64	'30	'90
	'90	'30	'64	'30	'35	'65	'29	'91
	'91	'30	'65	'26	'35	'67	'29	'90
	'93	'27	'64	'30	'35	'66	'30	'91
	'94	'28	'64	'29	'35	'69	'30	'91
	'95	'28	'65	'30	'34	'70	'30	'90
	'95	'30	'65	'26	'34	'70	'29	'90
	'96	'26	'64	'26	'35	'69	'29	'90
	'96	'26	'65	'28	'36	'69	'30	'90
	'95	'27	'65	'28	'35	'70	'30	'91
	'96	'26	'65	'25	'36	'69	'30	'91
Corresponding Mean Observed Times at	$h\ m\ s$ 11 43 20	$h\ m\ s$ 11 45 53	$h\ m\ s$ 11 44 40	$h\ m\ s$ 11 48 15	$h\ m\ s$ 12 39 48	$h\ m\ s$ 12 42 23	$h\ m\ s$ 12 40 55	$h\ m\ s$ 12 43 39
	$s$ +0'946	$s$ +0'290	$s$ +0'645	$s$ +0'283	$s$ +0'349	$s$ +0'652	$s$ +0'292	$s$ +0'905
Difference	$m\ s$ 1 10'054	$m\ s$ 1 7'710	$m\ s$ 1 7'645	$m\ s$ 1 10'283	$m\ s$ 1 9'651	$m\ s$ 1 7'348	$m\ s$ 1 7'292	$m\ s$ 1 9'905

*Arc Fyzabad and Agra*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1881 November 25	$\begin{matrix} h & m & s \\ 2 & 47 & 0 \end{matrix}$	$\begin{matrix} m & s \\ 16 & 39.805 \end{matrix}$	E		$\begin{matrix} s \\ -0.531 \\ \text{at} \end{matrix}$	$\begin{matrix} m & s \\ 16 & 39.798 \end{matrix}$	$\alpha$	$\begin{matrix} s \\ \text{at E, } Q = 2.022 \end{matrix}$		$\begin{matrix} m & s \\ D = 16 & 37.464 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 3 & 59 & 54 \end{matrix}$
	$\begin{matrix} 48 & 35 \end{matrix}$	$\begin{matrix} 36.427 \end{matrix}$	E	$\begin{matrix} s \\ -0.553 \\ \text{at} \\ 3^h 40^m \end{matrix}$	$\begin{matrix} s \\ 2^h 47^m 48^s \end{matrix}$	$\begin{matrix} 36.434 \end{matrix}$	$\gamma$			
"	$\begin{matrix} 2 & 47 & 48 \end{matrix}$	$\begin{matrix} 16 & 38.116 \end{matrix}$	E		$\begin{matrix} s \\ -0.575 \\ \text{at} \end{matrix}$	$\begin{matrix} 16 & 38.850 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at W, } Q = 1.682 \end{matrix}$		
	$\begin{matrix} 32 & 55 \end{matrix}$	$\begin{matrix} 35.450 \end{matrix}$	E		$\begin{matrix} s \\ 4^h 32^m 6^s \end{matrix}$	$\begin{matrix} 35.458 \end{matrix}$	$\gamma$		$\begin{matrix} s \\ + 0.019 \end{matrix}$	
"	$\begin{matrix} 4 & 32 & 6 \end{matrix}$	$\begin{matrix} 16 & 37.154 \end{matrix}$			$\begin{matrix} s \\ -0.589 \\ \text{at} \end{matrix}$	$\begin{matrix} 16 & 38.888 \end{matrix}$	$\delta$	$\begin{matrix} \text{at E, } Q = 2.025 \end{matrix}$		$\begin{matrix} m & s \\ D = 16 & 36.907 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 4 & 57 & 35 \end{matrix}$
	$\begin{matrix} 5 & 5 & 12 \end{matrix}$	$\begin{matrix} 16 & 38.893 \end{matrix}$	W		$\begin{matrix} s \\ 5^h 5^m 44^s \end{matrix}$	$\begin{matrix} 34.845 \end{matrix}$	$\beta$			
	$\begin{matrix} 6 & 16 \end{matrix}$	$\begin{matrix} 34.840 \end{matrix}$	W	$\begin{matrix} s \\ -0.606 \\ \text{at} \\ 5^h 45^m \end{matrix}$	$\begin{matrix} s \\ -0.623 \\ \text{at} \end{matrix}$	$\begin{matrix} 16 & 38.099 \end{matrix}$	$\delta$	$\begin{matrix} \text{at W, } Q = 1.696 \end{matrix}$		
"	$\begin{matrix} 5 & 5 & 44 \end{matrix}$	$\begin{matrix} 16 & 36.867 \end{matrix}$			$\begin{matrix} s \\ 6^h 24^m 19^s \end{matrix}$	$\begin{matrix} 34.049 \end{matrix}$	$\beta$			
	$\begin{matrix} 6 & 23 & 50 \end{matrix}$	$\begin{matrix} 16 & 38.104 \end{matrix}$	W							
	$\begin{matrix} 24 & 47 \end{matrix}$	$\begin{matrix} 34.044 \end{matrix}$	W							
	$\begin{matrix} 6 & 24 & 19 \end{matrix}$	$\begin{matrix} 16 & 36.074 \end{matrix}$								
November 28	$\begin{matrix} 2 & 41 & 44 \end{matrix}$	$\begin{matrix} 15 & 58.828 \end{matrix}$	E			$\begin{matrix} 15 & 58.808 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1.660 \end{matrix}$		$\begin{matrix} m & s \\ D = 15 & 56.446 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 3 & 59 & 26 \end{matrix}$
	$\begin{matrix} 42 & 38 \end{matrix}$	$\begin{matrix} 55.466 \end{matrix}$	E		$\begin{matrix} s \\ -0.585 \\ \text{at} \end{matrix}$	$\begin{matrix} 55.455 \end{matrix}$	$\gamma$		$\begin{matrix} + 0.040 \end{matrix}$	
	$\begin{matrix} 44 & 39 \end{matrix}$	$\begin{matrix} 58.862 \end{matrix}$	W		$\begin{matrix} s \\ 2^h 43^m 47^s \end{matrix}$	$\begin{matrix} 58.870 \end{matrix}$	$\delta$	$\begin{matrix} \text{at W, } Q = 1.677 \end{matrix}$		
	$\begin{matrix} 46 & 8 \end{matrix}$	$\begin{matrix} 55.528 \end{matrix}$	W			$\begin{matrix} 55.551 \end{matrix}$	$\beta$			
"	$\begin{matrix} 2 & 43 & 47 \end{matrix}$	$\begin{matrix} 15 & 57.171 \end{matrix}$		$\begin{matrix} s \\ -0.575 \\ \text{at} \\ 3^h 38^m \end{matrix}$						
	$\begin{matrix} 4 & 31 & 15 \end{matrix}$	$\begin{matrix} 15 & 57.795 \end{matrix}$	E			$\begin{matrix} 15 & 57.777 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1.672 \end{matrix}$		
	$\begin{matrix} 32 & 35 \end{matrix}$	$\begin{matrix} 54.379 \end{matrix}$	E		$\begin{matrix} s \\ -0.565 \\ \text{at} \end{matrix}$	$\begin{matrix} 54.374 \end{matrix}$	$\gamma$		$\begin{matrix} + 0.049 \end{matrix}$	
	$\begin{matrix} 33 & 46 \end{matrix}$	$\begin{matrix} 54.493 \end{matrix}$	W		$\begin{matrix} s \\ 4^h 33^m 3^s \end{matrix}$	$\begin{matrix} 54.500 \end{matrix}$	$\beta$	$\begin{matrix} \text{at W, } Q = 1.700 \end{matrix}$		$\begin{matrix} m & s \\ D = 15 & 55.909 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 4 & 56 & 19 \end{matrix}$
	$\begin{matrix} 34 & 36 \end{matrix}$	$\begin{matrix} 57.830 \end{matrix}$	W			$\begin{matrix} 57.845 \end{matrix}$	$\delta$			
"	$\begin{matrix} 4 & 33 & 3 \end{matrix}$	$\begin{matrix} 15 & 56.124 \end{matrix}$		$\begin{matrix} s \\ -0.556 \\ \text{at} \\ 5^h 21^m \end{matrix}$						
	$\begin{matrix} 6 & 7 & 20 \end{matrix}$	$\begin{matrix} 15 & 56.933 \end{matrix}$	E			$\begin{matrix} 15 & 56.917 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1.666 \end{matrix}$		
	$\begin{matrix} 8 & 35 \end{matrix}$	$\begin{matrix} 53.497 \end{matrix}$	E		$\begin{matrix} s \\ -0.547 \\ \text{at} \end{matrix}$	$\begin{matrix} 53.493 \end{matrix}$	$\gamma$		$\begin{matrix} + 0.030 \end{matrix}$	
	$\begin{matrix} 9 & 43 \end{matrix}$	$\begin{matrix} 53.592 \end{matrix}$	W		$\begin{matrix} s \\ 6^h 9^m 4^s \end{matrix}$	$\begin{matrix} 53.598 \end{matrix}$	$\beta$	$\begin{matrix} \text{at W, } Q = 1.712 \end{matrix}$		
	$\begin{matrix} 10 & 36 \end{matrix}$	$\begin{matrix} 56.916 \end{matrix}$	W			$\begin{matrix} 56.930 \end{matrix}$	$\delta$			
	$\begin{matrix} 6 & 9 & 4 \end{matrix}$	$\begin{matrix} 15 & 55.235 \end{matrix}$								



TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Fyzabad and Agra.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals trans- mitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced $R$	Interpo- lated $R_1$	Reduced Clock Differences $d_1$				
1881 November 29	$h \ m \ s$ 2 41 12 42 15 43 57 44 57	$m \ s$ 15 45 351 41 985 42 066 45 546	E E W W		$s$ - 0.577 at 2 <sup>h</sup> 43 <sup>m</sup> 5 <sup>s</sup>	$m \ s$ 15 45 333 41 977 42 074 45 564	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.745$  at W, $Q = 1.678$	+ 0.082	$D = 15 \ 43.010$ $T_E = 3 \ 59 \ 16$
"	$h \ m \ s$ 4 43 5 4 31 15 32 8 33 45 34 55	$m \ s$ 15 43 737 15 44 328 40 983 41 044 44 398	E E W W	$s$ - 0.573 at 3 <sup>h</sup> 38 <sup>m</sup>	$s$ - 0.569 at 4 <sup>h</sup> 33 <sup>m</sup> 1 <sup>s</sup>	$m \ s$ 15 44 311 40 975 41 051 44 416	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.683$  at W, $Q = 1.668$	+ 0.045	$D = 15 \ 42.468$ $T_E = 4 \ 56 \ 23$
"	$h \ m \ s$ 4 33 1 6 8 12 8 45 10 25 11 42 6 9 46	$m \ s$ 15 42 688 15 43 453 40 056 40 120 43 473 15 41 776	E E E W W W	$s$ - 0.565 at 5 <sup>h</sup> 21 <sup>m</sup>	$s$ - 0.561 at 6 <sup>h</sup> 9 <sup>m</sup> 46 <sup>s</sup>	$m \ s$ 15 43 438 40 047 40 126 43 491	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.682$  at W, $Q = 1.695$	+ 0.033	
November 30	$h \ m \ s$ 2 41 31 42 11 44 24 45 2	$m \ s$ 15 31 915 28 508 28 609 31 960	E E W W		$s$ - 0.575 at 2 <sup>h</sup> 43 <sup>m</sup> 17 <sup>s</sup>	$m \ s$ 15 31 898 28 497 28 620 31 977	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.679$  at W, $Q = 1.701$	+ 0.051	$D = 15 \ 29.518$ $T_E = 3 \ 59 \ 45$
"	$h \ m \ s$ 2 43 17 4 30 35 31 34 33 42 34 46	$m \ s$ 15 30 248 15 30 858 27 484 27 550 30 919	E E E W W	$s$ - 0.573 at 3 <sup>h</sup> 38 <sup>m</sup>	$s$ - 0.571 at 4 <sup>h</sup> 32 <sup>m</sup> 39 <sup>s</sup>	$m \ s$ 15 30 838 27 474 27 560 30 939	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.689$  at W, $Q = 1.682$	+ 0.047	$D = 15 \ 28.978$ $T_E = 4 \ 56 \ 18$
"	$h \ m \ s$ 4 32 39 6 4 46 5 44 7 45 8 47 6 6 46	$m \ s$ 15 29 203 15 29 978 26 595 26 654 30 008 15 28 309	E E E W W W	$s$ - 0.570 at 5 <sup>h</sup> 20 <sup>m</sup>	$s$ - 0.569 at 6 <sup>h</sup> 6 <sup>m</sup> 46 <sup>s</sup>	$m \ s$ 15 29 959 26 585 26 663 30 027	$\alpha$ $\gamma$ $\beta$ $\delta$	at E, $Q = 1.682$  at W, $Q = 1.687$	+ 0.037	





*Arc Fyzabad and Jubbulpore.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $= \frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1881 December 16	$h \ m \ s$ 4 41 20 43 2 44 10 45 39	$m \ s$ 7 49'379 46'605 46'004 49'006	E W E W	$s$ -0'116 at 5 <sup>h</sup> 11 <sup>m</sup>		$m \ s$ 7 49'375 46'604 46'005 49'010	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'203$  at W, $Q = 1'685$	$+ \ s$ 0'059	$D = \ m \ s$ 7 47'723 $T_E = \ h \ m \ s$ 4 56'54				
"	4 43 33	7 47'749	E			7 49'262	$\alpha$	at E, $Q = 1'207$						
	5 35 10	7 49'266	W			46'500	$\beta$	at W, $Q = 1'679$						
	36 32	46'502	E			45'905	$\gamma$							
	38 20	45'903	W			48'913	$\delta$							
	39 48	48'910												$D = \ m \ s$ 7 47'687 $T_E = \ h \ m \ s$ 5 15'47
	5 37 28	7 47'645												
December 19	4 42 20 44 14 45 20 46 55	7 45'344 42'604 41'988 45'009	E W E W			$s$ -0'025 at 5 <sup>h</sup> 11 <sup>m</sup>		7 45'343 42'604 41'988 45'010			$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'203$  at W, $Q = 1'678$	$+ \ s$ 0'071	$D = \ m \ s$ 7 43'731 $T_E = \ h \ m \ s$ 4 56'23
"	4 44 42	7 43'736	E	7 45'332	$\alpha$			at E, $Q = 1'200$						
	5 35 40	7 45'333	W	42'567	$\beta$									
	37 25	42'567	E	41'989	$\gamma$				at W, $Q = 1'671$					
	38 40	41'989	W	44'967	$\delta$									
	40 42	44'966										$D = \ m \ s$ 7 43'723 $T_E = \ h \ m \ s$ 5 15'16		
	5 38 7	7 43'714												
December 20	4 40 40 42 30 44 6 45 19	7 45'040 42'349 41'793 44'734	E W E W	$s$ -0'033 at 5 <sup>h</sup> 12 <sup>m</sup>				7 45'039 42'349 41'794 44'735	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'193$  at W, $Q = 1'623$	$+ \ s$ 0'063	$D = \ m \ s$ 7 43'472 $T_E = \ h \ m \ s$ 4 56'14		
"	4 43 9	7 43'479	E			7 44'985	$\alpha$	at E, $Q = 1'201$						
	5 37 35	7 44'987	W			42'304	$\beta$							
	39 2	42'305	E			41'795	$\gamma$		at W, $Q = 1'595$					
	41 43	41'794	W			44'705	$\delta$							
	42 56	44'704												$D = \ m \ s$ 7 43'461 $T_E = \ h \ m \ s$ 5 15'7
	5 40 19	7 43'448												

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1882 January 4	$h \ m \ s$ 6 11 41 12 46 14 40 16 20	$m \ s$ 10 29'9.12 27'51.1 27'68.5 30'39.6	E W E W	$s$ + 0'25.1 at 6h 45m		$m \ s$ 10 29'9.21 27'51.6 27'68.2 30'38.6	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'435$  at W, $Q = 1'120$	+ 0'075                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        <	

*Arc Hazaribagh and Fyzabad.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_R$ by Relative Rate Correction $R_1$		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1882 January 7	$\begin{matrix} h & m & s \\ 6 & 10 & 27 \end{matrix}$	$\begin{matrix} m & s \\ 10 & 46^{\circ}935 \end{matrix}$	E			$\begin{matrix} m & s \\ 10 & 46^{\circ}945 \end{matrix}$	$\alpha$	$\begin{matrix} s \\ \text{at E, } Q = 1^{\circ}405 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}048 \end{matrix}$	$\begin{matrix} m & s \\ D = 10 & 45^{\circ}910 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 26 & 56 \end{matrix}$
	$\begin{matrix} 11 & 11 \end{matrix}$	$\begin{matrix} 44^{\circ}480 \end{matrix}$	W			$\begin{matrix} 44^{\circ}486 \end{matrix}$	$\beta$			
	$\begin{matrix} 13 & 12 \end{matrix}$	$\begin{matrix} 44^{\circ}648 \end{matrix}$	E			$\begin{matrix} 44^{\circ}645 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}150 \end{matrix}$		
	$\begin{matrix} 15 & 4 \end{matrix}$	$\begin{matrix} 47^{\circ}307 \end{matrix}$	W			$\begin{matrix} 47^{\circ}295 \end{matrix}$	$\delta$			
	$\begin{matrix} 6 & 12 & 29 \end{matrix}$	$\begin{matrix} 10 & 45^{\circ}842 \end{matrix}$		$\begin{matrix} s \\ +0^{\circ}284 \\ \text{at} \\ 6^h 45^m \end{matrix}$						
"	$\begin{matrix} 7 & 15 & 46 \end{matrix}$	$\begin{matrix} 10 & 47^{\circ}207 \end{matrix}$	E			$\begin{matrix} 10 & 47^{\circ}216 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1^{\circ}409 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}060 \end{matrix}$	$\begin{matrix} m & s \\ D = 10 & 46^{\circ}021 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 50 & 18 \end{matrix}$
	$\begin{matrix} 16 & 31 \end{matrix}$	$\begin{matrix} 44^{\circ}796 \end{matrix}$	W			$\begin{matrix} 44^{\circ}801 \end{matrix}$	$\beta$			
	$\begin{matrix} 18 & 11 \end{matrix}$	$\begin{matrix} 44^{\circ}966 \end{matrix}$	E			$\begin{matrix} 44^{\circ}964 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}126 \end{matrix}$		
	$\begin{matrix} 20 & 13 \end{matrix}$	$\begin{matrix} 47^{\circ}631 \end{matrix}$	W			$\begin{matrix} 47^{\circ}619 \end{matrix}$	$\delta$			
	$\begin{matrix} 7 & 17 & 40 \end{matrix}$	$\begin{matrix} 10 & 46^{\circ}150 \end{matrix}$								
January 9	$\begin{matrix} 6 & 10 & 12 \end{matrix}$	$\begin{matrix} 10 & 58^{\circ}800 \end{matrix}$	E			$\begin{matrix} 10 & 58^{\circ}808 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1^{\circ}409 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}066 \end{matrix}$	$\begin{matrix} m & s \\ D = 10 & 57^{\circ}783 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 26 & 38 \end{matrix}$
	$\begin{matrix} 11 & 36 \end{matrix}$	$\begin{matrix} 56^{\circ}381 \end{matrix}$	W			$\begin{matrix} 56^{\circ}384 \end{matrix}$	$\beta$			
	$\begin{matrix} 13 & 12 \end{matrix}$	$\begin{matrix} 56^{\circ}518 \end{matrix}$	E			$\begin{matrix} 56^{\circ}515 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}147 \end{matrix}$		
	$\begin{matrix} 14 & 12 \end{matrix}$	$\begin{matrix} 59^{\circ}209 \end{matrix}$	W			$\begin{matrix} 59^{\circ}201 \end{matrix}$	$\delta$			
	$\begin{matrix} 6 & 12 & 18 \end{matrix}$	$\begin{matrix} 10 & 57^{\circ}727 \end{matrix}$		$\begin{matrix} s \\ +0^{\circ}240 \\ \text{at} \\ 6^h 44^m \end{matrix}$						
"	$\begin{matrix} 7 & 12 & 45 \end{matrix}$	$\begin{matrix} 10 & 59^{\circ}034 \end{matrix}$	E			$\begin{matrix} 10 & 59^{\circ}044 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1^{\circ}413 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}066 \end{matrix}$	$\begin{matrix} m & s \\ D = 10 & 57^{\circ}877 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 49 & 54 \end{matrix}$
	$\begin{matrix} 14 & 46 \end{matrix}$	$\begin{matrix} 56^{\circ}630 \end{matrix}$	W			$\begin{matrix} 56^{\circ}631 \end{matrix}$	$\beta$			
	$\begin{matrix} 16 & 12 \end{matrix}$	$\begin{matrix} 56^{\circ}783 \end{matrix}$	E			$\begin{matrix} 56^{\circ}779 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}132 \end{matrix}$		
	$\begin{matrix} 16 & 49 \end{matrix}$	$\begin{matrix} 59^{\circ}464 \end{matrix}$	W			$\begin{matrix} 59^{\circ}457 \end{matrix}$	$\delta$			
	$\begin{matrix} 7 & 15 & 8 \end{matrix}$	$\begin{matrix} 10 & 57^{\circ}978 \end{matrix}$								
January 10	$\begin{matrix} 6 & 8 & 50 \end{matrix}$	$\begin{matrix} 11 & 3^{\circ}525 \end{matrix}$	E			$\begin{matrix} 11 & 3^{\circ}532 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1^{\circ}417 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}071 \end{matrix}$	$\begin{matrix} m & s \\ D = 11 & 2^{\circ}509 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 26 & 33 \end{matrix}$
	$\begin{matrix} 9 & 40 \end{matrix}$	$\begin{matrix} 1^{\circ}101 \end{matrix}$	W			$\begin{matrix} 1^{\circ}105 \end{matrix}$	$\beta$			
	$\begin{matrix} 11 & 14 \end{matrix}$	$\begin{matrix} 1^{\circ}228 \end{matrix}$	E			$\begin{matrix} 1^{\circ}226 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}153 \end{matrix}$		
	$\begin{matrix} 12 & 50 \end{matrix}$	$\begin{matrix} 3^{\circ}946 \end{matrix}$	W			$\begin{matrix} 3^{\circ}938 \end{matrix}$	$\delta$			
	$\begin{matrix} 6 & 10 & 39 \end{matrix}$	$\begin{matrix} 11 & 2^{\circ}450 \end{matrix}$		$\begin{matrix} s \\ +0^{\circ}221 \\ \text{at} \\ 6^h 43^m \end{matrix}$						
"	$\begin{matrix} 7 & 12 & 50 \end{matrix}$	$\begin{matrix} 11 & 3^{\circ}701 \end{matrix}$	E			$\begin{matrix} 11 & 3^{\circ}708 \end{matrix}$	$\alpha$	$\begin{matrix} \text{at E, } Q = 1^{\circ}411 \end{matrix}$	+ $\begin{matrix} s \\ 0^{\circ}130 \end{matrix}$	$\begin{matrix} m & s \\ D = 11 & 2^{\circ}594 \end{matrix}$ $\begin{matrix} h & m & s \\ T_E = 6 & 49 & 49 \end{matrix}$
	$\begin{matrix} 14 & 49 \end{matrix}$	$\begin{matrix} 1^{\circ}405 \end{matrix}$	W			$\begin{matrix} 1^{\circ}405 \end{matrix}$	$\beta$			
	$\begin{matrix} 15 & 17 \end{matrix}$	$\begin{matrix} 1^{\circ}406 \end{matrix}$	E			$\begin{matrix} 1^{\circ}404 \end{matrix}$	$\gamma$	$\begin{matrix} \text{at W, } Q = 1^{\circ}152 \end{matrix}$		
	$\begin{matrix} 15 & 50 \end{matrix}$	$\begin{matrix} 4^{\circ}231 \end{matrix}$	W			$\begin{matrix} 4^{\circ}227 \end{matrix}$	$\delta$			
	$\begin{matrix} 7 & 14 & 43 \end{matrix}$	$\begin{matrix} 11 & 2^{\circ}686 \end{matrix}$								

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Hazaribagh and Jubbulpore.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$		
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$						
1882 January 19	$h \quad m \quad s$ 7 22 31	$m \quad s$ 19 45.968	E	$s$ + 0.619 at 7 <sup>h</sup> 58 <sup>m</sup>		$m \quad s$ 19 45.992	$\alpha$	at E, $Q = 1.396$	+ 0.087	$D = 19 \text{ } 44.768$ $T_E = 7 \text{ } 34 \text{ } 17$		
	24 25	43.356	W			43.362	$\beta$					
	25 40	43.184	E			43.177	$\gamma$	at W, $Q = 1.408$				
	27 6	46.176	W			46.154	$\delta$					
"	7 24 56	19 44.671									+ 0.091	$D = 19 \text{ } 44.978$ $T_E = 7 \text{ } 54 \text{ } 37$
	8 29 12	19 46.662	E			19 46.686	$\alpha$	at E, $Q = 1.418$				
	31 53	44.035	W			44.033	$\beta$					
	32 4	43.856	E			43.851	$\gamma$	at W, $Q = 1.417$				
	33 18	46.885	W	46.868	$\delta$							
	8 31 37	19 45.359										
January 20	7 22 30	20 0.982	E	$s$ + 0.638 at 7 <sup>h</sup> 58 <sup>m</sup>		19 61.007	$\alpha$	at E, $Q = 1.408$	+ 0.094	$D = 19 \text{ } 59.835$ $T_E = 7 \text{ } 39 \text{ } 56$		
	24 13	19 58.354	W			58.360	$\beta$					
	25 15	19 58.157	E			58.153	$\gamma$	at W, $Q = 1.427$				
	27 21	20 1.204	W			61.177	$\delta$					
"	7 24 50	19 59.674									+ 0.119	$D = 20 \text{ } 0.027$ $T_E = 7 \text{ } 57 \text{ } 55$
	8 29 15	20 1.642	E			19 61.663	$\alpha$	at E, $Q = 1.427$				
	30 29	19 59.064	W			59.072	$\beta$					
	31 45	19 58.864	E			58.858	$\gamma$	at W, $Q = 1.403$				
	33 23	20 1.949	W	61.926	$\delta$							
	8 31 13	20 0.380										
January 21	7 22 0	20 15.806	E	$s$ + 0.624 at 7 <sup>h</sup> 58 <sup>m</sup>		20 15.829	$\alpha$	at E, $Q = 1.412$	+ 0.094	$D = 20 \text{ } 14.654$ $T_E = 7 \text{ } 36 \text{ } 46$		
	23 5	13.194	W			13.206	$\beta$					
	25 20	13.042	E			13.031	$\gamma$	at W, $Q = 1.399$				
	26 30	16.053	W			16.029	$\delta$					
"	7 24 14	20 14.524									+ 0.095	$D = 20 \text{ } 14.859$ $T_E = 7 \text{ } 56 \text{ } 29$
	8 29 12	20 16.500	E			20 16.522	$\alpha$	at E, $Q = 1.403$				
	30 31	13.906	W			13.914	$\beta$					
	32 12	13.741	E			13.732	$\gamma$	at W, $Q = 1.395$				
	33 16	16.742	W	16.721	$\delta$							
	8 31 18	20 15.222										





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Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals trans- mitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$						
				Deduced R	Interpo- lated $R_1$	Reduced Clock Difference $d_1$										
1882 February 8	$h \ m \ s$ 8 50 37 51 50 53 24 54 50	$m \ s$ 16 14.712 11.941 11.893 14.873	E W E W	$\frac{s}{-0.384}$ at 9 <sup>h</sup> 23 <sup>m</sup>		$m \ s$ 16 14.699 11.936 11.898 14.887	$\alpha$  $\beta$  $\gamma$  $\delta$	at E, $Q = 1.476$   at W, $Q = 1.401$	+ 0.057	$D = 16 \ 13.253$ $T_E = 9 \ 8 \ 33$						
"	8 52 40 9 51 47 53 24 54 50 56 50	16 13.355 16 14.310 11.539 11.507 14.487	E W E W			16 14.294 11.534 11.511 14.504	$\alpha$  $\beta$  $\gamma$  $\delta$	at E, $Q = 1.485$   at W, $Q = 1.391$			+ 0.058	$D = 16 \ 13.124$ $T_E = 9 \ 28 \ 45$				
	9 54 13	16 12.961														
	February 9	8 50 17 51 15 52 45 54 50	16 5.166 2.383 2.338 5.300			E W E W	$\frac{s}{-0.426}$ at 9 <sup>h</sup> 23 <sup>m</sup>	16 5.152 2.376 2.341 5.318					$\alpha$  $\beta$  $\gamma$  $\delta$	at E, $Q = 1.471$   at W, $Q = 1.406$	+ 0.050	$D = 16 \ 3.689$ $T_E = 9 \ 7 \ 33$
	"	8 52 17 9 50 40 52 15 53 51 54 50	16 3.797 16 4.712 1.956 1.904 4.895			E W E W	16 4.696 1.951 1.911 4.909	$\alpha$  $\beta$  $\gamma$  $\delta$	at E, $Q = 1.479$   at W, $Q = 1.392$	+ 0.063			$D = 16 \ 3.543$ $T_E = 9 \ 28 \ 6$			
		9 52 54	16 3.367													
February 10		8 48 11 49 50 51 11 52 46	15 55.646 52.884 52.802 55.800			E W E W	$\frac{s}{-0.374}$ at 9 <sup>h</sup> 21 <sup>m</sup>	15 55.632 52.880 52.806 55.814	$\alpha$  $\beta$  $\gamma$  $\delta$		at E, $Q = 1.467$   at W, $Q = 1.413$	+ 0.064		$D = 15 \ 54.174$ $T_E = 9 \ 8 \ 2$		
"		8 50 30 9 49 12 50 32 51 40 53 15	15 54.283 15 55.258 52.488 52.461 55.412			E W E W		15 55.246 52.484 52.464 55.425	$\alpha$  $\beta$  $\gamma$  $\delta$		at E, $Q = 1.471$   at W, $Q = 1.391$				+ 0.050	$D = 15 \ 54.048$ $T_E = 9 \ 28 \ 14$
		9 51 10	15 53.905													

*Arc Calcutta and Hazaribagh.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$						
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$										
1882 February 13	$h \ m \ s$ 8 46 19 47 51 48 49 50 15	$m \ s$ 15 29'800 27'007 27'000 29'976	E W E W	$s$ -0'425 at 9 <sup>h</sup> 20 <sup>m</sup>		$m \ s$ 15 29'786	$\alpha$	$s$ at E, $Q = 1'493$	$+ \ 0'051$	$D = 15 \ 28'320$ $T_E = 9 \ 6 \ 8$						
"	8 48 19	15 28'446	E W E W			15 29'346	$\alpha$	at E, $Q = 1'485$								
	49 50	26'588				$\beta$										
	51 16	26'533				$\gamma$	at W, $Q = 1'405$									
	53 16	29'532				$\delta$										
	9 50 46	15 28'004														
	February 14	8 44 42 46 49 47 48 49 49				15 19'951 17'158 17'154 20'100	E W E W	$s$ -0'391 at 9 <sup>h</sup> 19 <sup>m</sup>				15 19'934	$\alpha$	at E, $Q = 1'481$	$+ \ 0'045$	$D = 15 \ 18'462$ $T_E = 9 \ 7 \ 4$
	"	8 47 17				15 18'591	E W E W					15 19'541	$\alpha$	at E, $Q = 1'488$		
9 48 31		15 19'554	$\beta$													
49 56		16'735	$\gamma$	at W, $Q = 1'403$												
51 2		16'731	$\delta$													
52 50		19'692														
9 50 35		15 18'178														
February 16		8 45 50 46 46 48 17 50 15	15 3'296 0'470 0'467 3'465	E W E W	$s$ -0'307 at 9 <sup>h</sup> 19 <sup>m</sup>				15 3'286	$\alpha$		at E, $Q = 1'507$	$+ \ 0'047$	$D = 15 \ 1'829$ $T_E = 9 \ 6 \ 35$		
"	8 47 47	15 1'925	E W E W	15 3'014			$\alpha$	at E, $Q = 1'498$								
	9 47 50	15 3'025		$\beta$												
	49 14	0'143		$\gamma$			at W, $Q = 1'437$									
	50 46	0'136		$\delta$												
	52 15	3'124														
	9 50 1	15 1'607														

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals trans- mitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$	
				Deduced R	Interpo- lated $R_1$	Reduced Clock Difference $d_1$					
1882 February 25	$h \ m \ s$ 9 41 24 42 51 43 15 45 53	$m \ s$ 14 36'923 34'771 34'204 36'785	E W E W	$s$ -0'328 at 10 <sup>h</sup> 17 <sup>m</sup>		$m \ s$ 14 36'913 34'769 34'202 36'798	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'015$  at W, $Q = 1'357$	+ 0'112	$m \ s$ D = 14 35'563 $h \ m \ s$ $T_E = 10 \ 3 \ 9$	
"	9 43 21 10 47 47 49 16 50 48 55 11 10 50 46	14 35'671 14 36'611 34'400 33'871 36'325 14 35'302	E W E W		14 36'595 34'392 33'872 36'349	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 0'978$  at W, $Q = 1'361$	+ 0'069		$m \ s$ D = 14 35'423 $h \ m \ s$ $T_E = 10 \ 28 \ 42$	
March 1	9 40 8 42 19 43 22 44 49	14 8'876 6'625 6'159 8'626	E W E W		14 8'866 6'623 6'162 8'635	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'006$  at W, $Q = 1'352$			+ 0'058	$m \ s$ D = 14 7'481 $h \ m \ s$ $T_E = 10 \ 4 \ 14$
"	9 42 39 10 47 20 48 26 49 30 51 28 10 49 11	14 7'572 14 8'635 6'341 5'835 8'353 14 7'291	E W E W		14 8'627 6'338 5'836 8'363	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'013$  at W, $Q = 1'396$				+ 0'060
March 2	9 40 20 42 16 43 26 45 15	14 3'037 0'825 0'312 2'817	E W E W		14 3'028 0'823 0'314 2'827	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'002$  at W, $Q = 1'357$		+ 0'077		
"	9 42 49 10 46 55 48 49 50 15 51 51 10 49 27	14 1'748 14 2'828 0'523 0'042 2'533 14 1'482	E W E W		14 2'818 0'520 0'045 2'543	$\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1'011$  at W, $Q = 1'387$	+ 0'050			

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri and Hazaribagh.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $= \frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1882 March 3	$h \quad m \quad s$ 9 40 45 42 43 43 35 45 27 9 43 8 10 48 25 49 30 51 15 52 17 10 50 21	$m \quad s$ 13 57.254 55.037 54.488 57.033 13 55.953 13 56.960 54.740 54.231 56.755 13 55.672	E W E W  E W E W	$s$ -0.251 at 10 <sup>h</sup> 17 <sup>m</sup>		$m \quad s$ 13 57.244 55.035 54.490 57.043  13 56.952 54.736 54.235 56.763	$\alpha$ $\beta$ $\gamma$ $\delta$  $\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1.004$  at W, $Q = 1.377$   at E, $Q = 1.014$  at W, $Q = 1.359$	+ 0.086     + 0.078	$D = 13 55.867$ $T_E = 10 3 50$    $D = 13 55.785$ $T_E = 10 23 24$
March 4	9 40 48 42 35 43 40 45 14 9 43 4 10 45 11 47 32 49 48 51 4 10 48 24	13 49.636 47.392 46.895 49.392 13 48.329 13 49.197 46.981 46.462 48.978 13 47.905	E W E W  E W E W	$s$ -0.389 at 10 <sup>h</sup> 16 <sup>m</sup>		13 49.621 47.389 46.899 49.406  13 49.176 46.975 46.471 48.995	$\alpha$ $\beta$ $\gamma$ $\delta$  $\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1.008$  at W, $Q = 1.361$   at E, $Q = 1.010$  at W, $Q = 1.353$	+ 0.069     + 0.081	$D = 13 48.196$ $T_E = 10 3 37$  $D = 13 48.068$ $T_E = 10 23 21$
March 5	9 40 45 42 6 43 52 44 51 9 42 54 10 46 20 47 50 48 33 50 24 10 48 17	13 40.669 38.429 37.855 40.435 13 39.347 13 40.274 38.035 37.539 40.038 13 38.972	E W E W  E W E W	$s$ -0.344 at 10 <sup>h</sup> 16 <sup>m</sup>		13 40.657 38.424 37.861 40.446  13 40.263 38.032 37.541 40.050	$\alpha$ $\beta$ $\gamma$ $\delta$  $\alpha$ $\beta$ $\gamma$ $\delta$	at E, $Q = 1.011$  at W, $Q = 1.398$   at E, $Q = 1.009$  at W, $Q = 1.361$	+ 0.088     + 0.070	$D = 13 39.229$ $T_E = 10 3 24$  $D = 13 39.116$ $T_E = 10 23 8$

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri and Calcutta.*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction $R_1$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1882 March 17	$h \ m \ s$ 10 40 46	$m \ s$ 1 14'309	E			$m \ s$ 1 14'294	$\alpha$	at E, $Q = 1'012$		$D = 1 \ 13'125$ $T_E = 11 \ 6 \ 57$
	42 25	12'301	W			12'297	$\beta$		+ 0'036	
	43 33	12'177	E			12'179	$\gamma$	at W, $Q = 1'058$		
	45 47	14'304	W			14'320	$\delta$			
	10 43 8	1 13'273		$s$ -0'373 at 11 <sup>h</sup> 14 <sup>m</sup>						
"	11 42 59	1 13'934	E			1 13'919	$\alpha$	at E, $Q = 1'008$		$D = 1 \ 12'970$ $T_E = 11 \ 31 \ 50$
	45 7	11'904	W			11'902	$\beta$		+ 0'024	
	45 57	11'800	E			11'804	$\gamma$	at W, $Q = 1'057$		
	47 28	13'905	W			13'918	$\delta$			
	11 45 23	1 12'886								
March 19	10 40 51	0 55'530	E			0 55'516	$\alpha$	at E, $Q = 1'020$		$D = 0 \ 54'280$ $T_E = 11 \ 6 \ 32$
	42 13	53'436	W			53'431	$\beta$		+ 0'019	
	43 34	53'308	E			53'312	$\gamma$	at W, $Q = 1'102$		
	45 12	55'457	W			55'472	$\delta$			
	10 42 58	0 54'433		$s$ -0'390 at 11 <sup>h</sup> 14 <sup>m</sup>						
"	11 43 21	0 55'077	E			0 55'066	$\alpha$	at E, $Q = 1'032$		$D = 0 \ 54'118$ $T_E = 11 \ 31 \ 25$
	44 14	53'046	W			53'041	$\beta$		+ 0'043	
	45 23	52'905	E			52'907	$\gamma$	at W, $Q = 1'080$		
	47 11	55'091	W			55'105	$\delta$			
	11 45 2	0 54'030								
March 22	10 40 30	0 29'050	E			0 29'038	$\alpha$	at E, $Q = 1'012$		$D = 0 \ 27'867$ $T_E = 11 \ 4 \ 40$
	42 5	27'040	W			27'038	$\beta$		+ 0'044	
	42 42	26'882	E			26'884	$\gamma$	at W, $Q = 1'077$		
	44 14	29'050	W			29'062	$\delta$			
	10 42 23	0 28'006		$s$ -0'375 at 11 <sup>h</sup> 13 <sup>m</sup>						
"	11 42 20	0 28'705	E			0 28'691	$\alpha$	at E, $Q = 1'011$		$D = 0 \ 27'698$ $T_E = 11 \ 31 \ 39$
	43 40	26'658	W			26'653	$\beta$		+ 0'046	
	45 17	26'447	E			26'452	$\gamma$	at W, $Q = 1'120$		
	46 46	28'660	W			28'674	$\delta$			
	11 44 31	0 27'618								



TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

OBSERVED WITH TELESCOPE No. 2.															OBSERVED WITH TELESCOPE No. 1.																
BY STARS OF		At AGRA															At AGRA														
		November 5, 1881			November 6, 1881			November 11, 1881			November 13, 1881			November 14, 1881																	
		Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H															
NORTH ASPECT		849	0 29 28	0.10	510	0 42 1	0.05	432	0 44 48	0.00	404	0 44 45	0.08	404	0 44 45	0.03															
		404	+ 44 55	- .15	558	+ 54 34	+ .04	441	+ 46 24	- .03	432	+ 44 49	- .11	432	+ 44 49	+ .05															
		432	+ 44 48	+ .01	509	+ 29 0	- .12	487	+ 48 2	+ .07	441	+ 46 24	- .04	441	+ 46 24	- .06															
		441	+ 46 24	+ .08	579	+ 36 42	+ .02	510	+ 42 1	+ .01	487	+ 48 2	- .08	487	+ 48 2	+ .02															
		487	+ 48 2	+ .05	628	+ 41 46	+ .11	558	+ 54 34	- .10	510	+ 42 1	- .03	510	+ 42 1	+ .01															
		510	+ 42 1	+ .06	667	+ 30 58	- .01	509	+ 29 0	.00	558	+ 54 34	- .04	558	+ 54 34	+ .11															
		727	+ 40 52	+ .04	692	+ 25 14	- .03	575	+ 40 7	.00	509	+ 29 0	+ .03	509	+ 29 0	+ .03															
		858	+ 56 35	+ .14	727	+ 40 52	- .04	628	+ 41 46	- .02	579	+ 36 42	- .06	579	+ 36 42	+ .03															
		897	+ 46 41	+ .03	772	+ 35 37	+ .03	667	+ 30 58	- .02	628	+ 41 46	- .02	628	+ 41 42	.00															
		902	+ 49 10	+ .08	785	+ 51 27	- .10	772	+ 35 37	- .09	667	+ 30 58	- .02	667	+ 30 58	+ .07															
		Mean (S <sub>N</sub> - H <sub>N</sub> )	+ 0.044		- 0.001		- 0.029		- 0.042		+ 0.018																				
		± 0.017	± 0.014		± 0.012		± 0.008		± 0.011																						
SOUTH ASPECT		307	+ 20 51	- 0.06	542	+ 10 15	+ 0.06	η Pisc.	+ 14 44	+ 0.06	388	+ 3 0	- 0.06	388	+ 3 0	- 0.02															
		370	+ 15 31	+ .06	593	+ 23 1	+ .06	470	+ 11 57	- .06	413	+ 17 12	- .03	413	+ 17 12	- .12															
		388	+ 3 0	- .04	641	+ 7 10	- .03	542	+ 10 15	- .04	η Pisc.	+ 14 44	- .08	η Pisc.	+ 14 44	- .03															
		413	+ 17 12	+ .08	650	+ 17 28	- .09	593	+ 23 1	+ .08	470	+ 11 57	- .02	470	+ 11 57	- .02															
		η Pisc.	+ 14 44	- .05	704	- 6 58	- .03	641	+ 7 10	.00	533	+ 19 30	.00	533	+ 19 30	+ .15															
		470	+ 11 57	- .02	760	+ 7 56	- .05	650	+ 17 28	+ .01	542	+ 10 15	- .04	542	+ 10 15	+ .01															
		813	+ 26 33	- .11	813	+ 26 33	+ .16	782	- 1 25	+ .02	593	+ 23 1	- .04	593	+ 23 1	.00															
		837	+ 2 44	- .08	837	+ 2 44	- .05	760	+ 7 56	+ .08	650	+ 17 28	+ .05	641	+ 7 10	- .02															
		870	+ 16 58	+ .03	870	+ 16 58	+ .01	837	+ 2 44	+ .02	692	+ 25 14	+ .03	650	+ 17 28	+ .01															
		881	+ 14 36	+ .08				800	+ 7 13	.00				692	+ 25 14	+ .03															
		Mean (S <sub>S</sub> - H <sub>S</sub> )	- 0.018		+ 0.004		+ 0.017		- 0.021		- 0.001																				
		± 0.014	± 0.017		± 0.010		± 0.009		± 0.014																						

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

OBSERVED WITH TELESCOPE No. 2.				OBSERVED WITH TELESCOPE No. 1.			OBSERVED WITH TELESCOPE No. 2.						OBSERVED WITH TELESCOPE No. 1.					
BY STARS OF	At FYZABAD			At FYZABAD			At HAZARIBAGH						At JALPAIGURI					
	December 28, 1881			December 29, 1881			January 31, 1882			February 1, 1882			April 1, 1882			April 2, 1882		
	Star	Decl.	Equation S-II	Star	Decl.	Equation S-II	Star	Decl.	Equation S-II	Star	Decl.	Equation S-II	Star	Decl.	Equation S-II	Star	Decl.	Equation S-II
NORTH ASPECT	173	+38 49	+0.02	1269	+37 44	-0.01	1017	+33 48	-0.03	1017	+33 48	-0.08	2429	+40 54	+0.02	2340	+30 26	-0.02
	189	+46 23	-0.01	1326	+27 4	-0.07	1029	+25 13	-0.06	1029	+25 13	-0.06	2442	+28 2	-0.02	2374	+28 6	-0.04
	285	+31 10	+0.01	1361	+31 10	-0.02	1040	+27 12	-0.09	1040	+27 12	-0.02	2493	+27 10	-0.02	2416	+36 59	-0.01
	310	+31 33	+0.01	1398	+42 49	+0.01	1097	+31 37	-0.10	1097	+31 37	0.00	2504	+35 19	0.00	2429	+40 54	-0.04
	321	+31 23	+0.04	1408	+28 43	-0.07	1132	+33 35	+0.01	1132	+33 35	-0.03	2563	+33 43	-0.02	2442	+28 2	-0.06
	337	+41 27	+0.01	1445	+43 8	+0.03	1138	+31 55	-0.04	1138	+31 55	-0.06	2576	+54 25	-0.07	2493	+27 10	0.00
	404	+44 55	+0.19	1475	+32 23	0.00	1154	+24 0	-0.05	1154	+24 0	-0.06	2617	+27 5	-0.05	2504	+35 19	0.00
	432	+44 48	-0.05	1492	+36 30	+0.04	1192	+25 13	-0.06	1192	+25 13	-0.02	6 Cane.	+28 8	-0.07	2563	+33 43	-0.04
	510	+42 1	-0.07	1602	+38 21	-0.01	1219	+39 40	+0.06	1219	+39 40	-0.05	2786	+27 36	0.00	2576	+54 25	+0.07
	1398	+42 49	-0.03	1629	+33 38	+0.05	1269	+37 44	-0.03	1269	+37 44	0.00	2793	+43 34	+0.02	2592	+33 32	0.00
	1408	+28 43	+0.07	1663	+37 16	+0.03	2275	+26 14	-0.05	2239	+38 35	+0.08	2798	+42 23	-0.01	2617	+27 5	-0.06
	1445	+43 8	-0.01	1681	+28 30	+0.09	2301	+29 33	-0.03	2275	+26 14	+0.01	3572	+37 19	+0.03	6 Cane.	+28 8	-0.01
	1475	+32 23	-0.04				2364	+25 5	-0.03	2301	+29 33	-0.06	3584	+39 32	-0.07	2730	+25 52	+0.07
	1492	+36 30	+0.06				2383	+26 54	-0.04	2364	+25 5	-0.06	3610	+35 36	+0.04	3584	+39 32	+0.02
	1541	+40 54	-0.06				2440	+27 52	-0.10	2383	+26 54	+0.04	3710	+28 36	+0.01	3602	+32 59	+0.02
	1577	+28 7	-0.05				2464	+32 1	-0.03	2440	+27 52	-0.02	3757	+41 4	-0.09	3610	+35 36	+0.03
	1602	+38 21	+0.01				2472	+28 10	-0.01	2464	+32 1	-0.03	3784	+38 53	-0.03	3633	+34 41	+0.05
	1629	+33 38	+0.06				2493	+27 10	-0.03	2472	+28 10	-0.02	3812	+45 8	-0.03	3685	+31 18	+0.03
	1663	+37 16	+0.02				2514	+24 30	0.00	2493	+27 10	+0.03	3846	+50 7	+0.08	3710	+28 36	+0.04
	1681	+28 30	-0.03				2617	+27 5	-0.02	2514	+24 30	-0.10	3851	+32 12	-0.02	3742	+25 23	+0.11
													3913	+43 49	-0.04			
	Mean( $S_N - H_N$ )		+0.005			-0.006			-0.037			-0.026			-0.016			+0.008
			$\pm 0.009$			$\pm 0.010$			$\pm 0.006$			$\pm 0.006$			$\pm 0.006$			$\pm 0.007$



TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

OBSERVED WITH TELESCOPE No. 2.				OBSERVED WITH TELESCOPE No. 1.			OBSERVED WITH TELESCOPE No. 2.						OBSERVED WITH TELESCOPE No. 1.					
By Stars of	At FYZABAD			At FYZABAD			At HAZARIBAGH						At JALPAIGURI					
	December 28, 1881			December 29, 1881			January 31, 1882			February 1, 1882			April 1, 1882			April 2, 1882		
	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H	Star	Decl.	Equation S-H
SOUTH ASPECT	205	° 5 17	-0.01	1244	° 9 40	+0.03	999	+20 36	-0.01	999	+20 36	-0.06	2462	+ 8 32	-0.03	2358	- 0 18	-0.02
	217	+20 17	+ .01	1257	+21 46	+ .03	1053	+20 23	.00	1053	+20 23	- .07	2473	+12 15	+ .05	2398	+16 45	.00
	237	+ 2 45	+ .12	1279	+26 10	+ .09	1069	+22 24	- .04	1069	+22 24	- .05	2480	+ 2 10	+ .07	2462	+ 8 32	+ .04
	247	+18 33	+ .02	1289	+22 7	- .05	1107	+22 49	+ .07	1084	+10 56	- .05	2519	+17 57	+ .04	2478	+12 15	+ .04
	263	+26 22	+ .08	1302	+15 6	+ .03	1119	+16 9	- .10	1107	+22 49	- .06	2537	+13 46	- .02	2519	+17 57	- .06
	274	+ 5 51	- .04	1341	+25 21	- .01	1166	+23 44	- .09	1119	+16 9	- .02	2549	+26 4	- .02	2537	+13 46	+ .06
	370	+15 31	+ .12	1380	+15 42	+ .04	1206	+16 59	- .07	1166	+23 44	- .01	2636	+ 9 11	+ .02	2549	+26 4	- .01
	388	+ 3 0	+ .12	1421	+ 9 55	- .01	1238	+22 52	- .05	1206	+16 59	.00	2650	+17 38	+ .01	2636	+ 9 11	+ .02
	413	+17 12	+ .08	1434	+12 16	+ .03	1257	+21 46	+ .02	1238	+22 52	+ .05	2700	+22 59	.00	2700	+22 59	.00
	η Pisc.	+14 44	- .01	1460	+10 55	+ .05	2313	+22 49	- .02	1257	+21 46	- .05	2720	+13 59	+ .04	2720	+13 59	+ .01
	470	+11 57	+ .05	1508	+ 2 19	+ .10	2330	+16 7	+ .01	2228	+16 19	- .05	2744	+18 1	+ .04	3621	+ 7 34	- .01
	533	+19 30	- .03	1620	+22 9	- .03	2347	+15 31	- .01	2255	+13 20	- .07	2759	+18 2	+ .07	3663	- 1 7	+ .08
	542	+10 15	+ .12	1701	+15 46	+ .02	2410	+22 12	+ .07	2313	+22 49	- .06	2778	+ 9 33	+ .06	3672	+ 5 22	+ .06
	1421	+ 9 55	- .04	1711	+20 27	+ .07	2483	+15 54	+ .11	2330	+16 7	- .08	3621	+ 7 34	+ .08			
	1434	+12 16	+ .06				2537	+13 46	- .04	2347	+15 31	+ .03	3646	-16 16	+ .03			
	1460	+10 55	+ .05				2556	+20 36	+ .07	2410	+22 12	.00	3672	+ 5 22	+ .04			
	1508	+ 2 19	- .03				2578	+23 26	+ .01	2483	+15 54	- .04	3726	+ 1 39	+ .07			
	1528	+24 52	+ .10				2659	+17 38	- .05	2537	+13 46	.00	3775	- 1 51	+ .02			
	1562	+26 16	+ .11							2556	+20 36	+ .06	3778	+ 2 36	- .03			
	1620	+22 9	- .04							2578	+23 26	- .03	3824	+15 2	+ .13			
	1648	+27 50	+ .15										3834	+21 11	.00			
	1701	+15 46	+ .02										3871	+ 7 14	+ .03			
	1711	+20 27	+ .11										3886	+17 6	+ .01			
													3900	+ 3 30	+ .06			
	Mean ( $S_B - H_B$ )		+0.049			+0.028			+0.005			-0.027			+0.032			+0.017
			±0.009			±0.008			±0.008			±0.006			±0.005			±0.007

TABLE VI. DEDUCTION OF THE FINAL VALUES OF THE RELATIVE PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

SEASON	BY STARS OF NORTH ASPECT					BY STARS OF SOUTH ASPECT				
	Astronomical Date	Telescope in use	Mean Value of Equation $S_N - H_N$	Combination Weight	General Mean $S_N - H_N$	Astronomical Date	Telescope in use	Mean Value of Equation $S_S - H_S$	Combination Weight	General Mean $S_S - H_S$
1881	1881 November 5	No. 2	+ 0.044	35		1881 November 5	No. 2	- 0.018	51	
	" 6	" 2	- .001	51		" 6	" 2	+ .004	35	
	" 11	" 1	- .029	69	- 0.014	" 11	" 1	+ .017	100	- 0.005
	" 13	" 1	- .042	156		" 13	" 1	- .021	123	
	" 14	" 1	+ .018	83		" 14	" 1	- .001	51	
	December 28	No. 2	+ 0.005	123		December 28	No. 2	+ 0.049	123	
	" 29	" 1	- .006	100	0.000	" 29	" 1	+ .028	156	+ 0.037
	1882 January 31	No. 2	- 0.037	278		1882 January 31	No. 2	+ 0.005	156	
	February 1	" 2	- .026	278	- 0.032	February 1	" 2	- .027	278	- 0.015
	April 1	No. 1	- 0.016	278		April 1	No. 1	+ 0.032	400	
1882	" 2	" 1	+ .008	204	- 0.006	" 2	" 1	+ .017	204	+ 0.027

*Final Values of the Equation adopted.*

For the first two arcs of the season, *viz.*, Fyzabad-Agra and Fyzabad-Jubbulpore, the following values were adopted.

$$S_N - H_N = -0.007, \quad \text{and} \quad S_S - H_S = +0.016, \quad \text{being the means of the November and December values.}$$

For the third and fourth arcs, *viz.*, Hazaribagh-Fyzabad and Hazaribagh-Jubbulpore, the following values were adopted.

$$S_N - H_N = -0.016, \quad \text{and} \quad S_S - H_S = +0.011, \quad \text{being the means of the December and January values.}$$

For the fifth, sixth and seventh arcs, *viz.*, Calcutta-Hazaribagh, Jalpaiguri-Hazaribagh and Jalpaiguri-Calcutta, the following values were adopted.

$$S_N - H_N = -0.019, \quad \text{and} \quad S_S - H_S = +0.006, \quad \text{being the means of the January and April values.}$$

TABLE VII. ABSTRACT OF OBSERVED VALUES OF THE ABSOLUTE (N-S) EQUATIONS

*Of Majors Strahan and Heaviside, Season 1881-82.*

ARC FYZABAD-AGRA						ARC FYZABAD-JUBBULPORE						ARC HAZARIBAGH-FYZABAD					
Heaviside at Fyzabad			Strahan at Agra			Heaviside at Fyzabad			Strahan at Jubbulpore			Strahan at Hazaribagh			Heaviside at Fyzabad		
Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed
1279	<sup>s</sup> 0.00	N	1279	<sup>s</sup> -0.12	N	1279	<sup>s</sup> -0.03	N	1289	<sup>s</sup> -0.10	S	1742	<sup>s</sup> -0.03	S	1754	<sup>s</sup> +0.03	S
	+ .01	"		+ .05	"		+ .06	"		+ .02	"		- .01	"		+ .01	"
	- .07	"		- .01	"		+ .09	"		- .08	"		+ .03	"		- .04	"
	+ .08	"		+ .05	"		+ .06	"		+ .04	"		+ .03	"		.00	"
	.00	"		- .03	"		+ .06	"		- .14	"		+ .04	"		+ .03	"
	+ .07	"		+ .03	"	1326	- .03	S		+ .12	N		+ .07	"		+ .05	"
1502	.00	S	1562	+ .05	S		- .04	"	1371	- .02	N	1829	+ .04	N	1863	+ .10	S
	- .05	"		- .03	"		+ .02	"		+ .03	"		+ .06	"		+ .02	"
	.00	"		- .02	"		+ .01	"		+ .01	"		+ .08	"		- .02	"
	+ .08	"		- .16	"		+ .01	"		+ .05	"		+ .07	"		+ .18	"
	+ .01	"		+ .04	"	1528	- .08	S		+ .02	"		+ .05	"		- .01	"
1648	+ .02	N	1040	- .04	S		- .03	"	1528	- .01	S	2514	+ .02	N		+ .02	"
	+ .03	"		- .01	"	1562	+ .01	S		- .11	"		+ .03	"	2493	+ .07	S
	- .04	"		+ .04	"		+ .05	"		+ .04	"		- .03	"		+ .04	"
	+ .02	"		- .07	"		+ .05	"		- .03	"		+ .16	"		.00	"
	.00	"		- .01	"		- .04	"		- .02	"		+ .07	"		+ .05	"
	- .02	"	1048	- .03	N		+ .01	"	1620	- .03	S		+ .04	"		+ .02	"
1040	+ .02	S		- .02	"	1048	- .02	N		.00	"	2700	- .02	S		- .01	"
	- .13	"		- .01	"		+ .04	"		+ .07	"		- .04	"	2617	+ .06	N
	+ .01	"		+ .02	"		+ .05	"		+ .02	"		- .07	"		+ .01	"
	+ .02	"		- .06	"		+ .18	"		- .01	"		- .02	"		+ .11	"
	+ .07	"		+ .06	"		+ .04	"		- .06	"		+ .06	"		+ .04	"
1746	- .06	S	1740	- .05	S	1896	- .08	N	1925	- .08	S		- .04	"		+ .03	"
	+ .03	"		- .02	"		.00	"		.00	"	2154	- .08	S		+ .01	"
	- .02	"		+ .01	"		+ .08	"		.00	"		- .01	"	2097	+ .06	N
	+ .02	"		- .02	"		- .01	"		- .05	"		- .07	"		+ .05	"
	+ .10	"		- .08	"		+ .03	"		- .04	"		+ .04	"		+ .05	"
				- .02	"	2154	+ .04	N		+ .01	"		+ .02	"		+ .07	"
Mean	+0.007 ±0.007		Mean	-0.016 ±0.007			+ .19	"	2047	- .12	S		+ .01	"		+ .04	"
							+ .09	"		+ .02	"	2313	+ .06	S		- .03	"
							+ .04	"		- .04	"		- .04	"	2275	- .02	N
							- .07	"		+ .07	"		- .02	"		+ .05	"
							- .01	"		+ .05	"		- .01	"		+ .03	"
						Mean	+0.023 ±0.007			+ .03	"		+ .05	"		+ .01	"
									2154	+ .05	N	Mean	+0.014 ±0.006		Mean	+0.032 ±0.005	
										+ .04	"						
										+ .05	"						
										+ .03	"						
										+ .02	"						
									Mean	-0.001 ±0.006							

NOTE.—The symbol, N-S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.

*Of Majors Strahan and Heaviside, Season 1881-82.*

ARC HAZARIBAGH-JUBBULPORE						ARC CALCUTTA-HAZARIBAGH						ARC JALPAIGURI-HAZARIBAGH						ARC JALPAIGURI-CALCUTTA					
Strahan at Hazaribagh			Heaviside at Jubbulpore			Heaviside at Calcutta			Strahan at Hazaribagh			Heaviside at Jalpaiguri			Strahan at Hazaribagh			Heaviside at Jalpaiguri			Strahan at Calcutta		
Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed	Star	Equation N-S	Aspect first observed
2154	+0.04	N	2154	+0.02	N	2714	+0.05	N	2714	+0.08	N	3079	+0.01	N	3079	+0.06	N	3666	+0.08	N	3485	+0.00	S
	-0.01	"		+0.08	"		0.00	"		+0.07	"		+0.02	"		+0.12	"		+0.03	"		+0.02	"
	+0.04	"		+0.04	"		+0.06	"		+0.03	"		+0.04	"		-0.02	"		+0.11	"	3834	+0.03	S
	+0.03	"		-0.02	"		+0.09	"		+0.02	"		+0.01	"		-0.01	"	3787	+0.06	S		+0.04	"
	+0.09	"		+0.07	"		+0.09	"		+0.13	"		-0.01	"		+0.09	"		+0.08	"		+0.13	"
2813	+0.10	N	2313	+0.06	N	2788	0.00	S		+0.09	"	3170	+0.05	S	3204	+0.13	N	3797	+0.01	N	3964	+0.01	S
	+0.07	"		+0.03	"		+0.05	"	2838	-0.05	S		+0.04	"		+0.02	"		+0.04	"		0.00	"
	+0.07	"		-0.04	"		+0.02	"		-0.02	"		+0.01	"		+0.03	"	4107	-0.02	N		+0.03	"
	+0.06	"		0.00	"		+0.07	"		-0.05	"		+0.03	"		+0.12	"		+0.06	"		-0.07	"
	+0.01	"		+0.05	"		+0.01	"		+0.01	"	3194	+0.03	S		+0.10	"		0.00	"		-0.08	"
	-0.02	"		+0.03	"	3485	-0.02	S		-0.05	"		-0.10	"	3787	-0.07	S	4139	+0.03	N		-0.08	"
2514	+0.05	N	2514	+0.01	N		0.00	"		-0.02	"		-0.03	"		0.00	"		+0.03	"	4240	-0.05	S
	+0.01	"		+0.01	"		+0.08	"	3508	-0.09	S		+0.09	"		-0.03	"		+0.08	"		0.00	"
	-0.03	"		+0.13	"		+0.04	"		-0.03	"		+0.08	"			"		+0.04	"		+0.07	"
	+0.04	"		+0.03	"		0.00	"		-0.01	"		-0.04	"	Mean	+0.042			+0.01	"		+0.03	"
	+0.07	"		+0.06	"		+0.02	"		+0.02	"	3787	+0.13	S					+0.12	"		-0.05	"
2578	+0.05	N	2578	0.00	S	3671	+0.12	N		+0.06	"		+0.03	"				4169	+0.02	S		-0.01	"
	+0.05	"		-0.05	"		-0.10	"		+0.01	"	3797	+0.09	N					+0.05	"	4566	-0.02	N
	-0.01	"		+0.02	"		-0.01	"	3671	+0.07	N		+0.12	"					+0.05	"		+0.10	"
	+0.08	"		+0.04	"		-0.01	"		+0.07	"		-0.01	"					+0.04	"		+0.04	"
	+0.09	"		-0.01	"		+0.09	"		+0.09	"	Mean							-0.02	"	Mean		"
2700	+0.04	S	2700	+0.03	N		-0.04	"		+0.07	"		+0.030						+0.05	"		+0.007	
	-0.03	"		+0.02	"	3117	+0.03	S		+0.07	"		±0.008						+0.05	"		±0.009	
	0.00	"		+0.03	"		-0.01	"		+0.09	"								+0.04	N			
	+0.01	"		0.00	"		+0.01	"	3079	-0.03	S								+0.10	"			
	+0.06	"		+0.01	"		-0.01	"		+0.02	"								+0.14	"			
	0.00	"		+0.02	"		-0.07	"		+0.06	N								+0.07	"			
2937	+0.04	N	2937	+0.02	N		+0.08	"		-0.03	S								+0.09	"			
3079	+0.01	N	3079	0.00	N	3138	+0.02	S		-0.02	"								+0.09	"			
	+0.01	"		+0.06	"		+0.02	"		+0.01	"								+0.04	"			
	+0.04	"		+0.05	"		-0.01	"	3246	+0.08	N									"			
	+0.05	"		+0.05	"		+0.08	"		+0.04	"									"			
	-0.02	"		+0.06	"		+0.03	"		+0.08	"									"			
3117	+0.01	S	3117	+0.03	S		-0.06	"		+0.05	"									"			
	-0.04	"		+0.03	"	Mean	+0.021			+0.04	"									"			
	-0.03	"		+0.08	"		±0.006		Mean	+0.029										"			
	+0.02	"		+0.01	"					±0.006										"			
	+0.03	"		+0.01	"															"			
	+0.05	"		-0.02	"															"			
Mean	+0.029		Mean	+0.027																			
	±0.004			±0.004																			

NOTE.—The symbol, N-S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.



TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .007 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .016	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Nov. 28	1525	+ 13 20	S	<i>I. P. E.</i>	4 50 8 <sup>.71</sup>	-1 <sup>.54</sup>	7 <sup>.17</sup>	S	<i>I. P. W.</i>	4 50 40 <sup>.67</sup>	-1 <sup>.86</sup>	38 <sup>.81</sup>	+ 0 31 <sup>.64</sup>				
	1534	+ 39 13	N	<i>d</i> <i>c</i> - 1 <sup>.1</sup>	52 36 <sup>.92</sup>	-1 <sup>.65</sup>	35 <sup>.27</sup>	N	<i>d</i> <i>c</i> + 1 <sup>.8</sup>	53 8 <sup>.28</sup>	-1 <sup>.48</sup>	6 <sup>.80</sup>	31 <sup>.53</sup>				
	1535	+ 39 28	N	<i>b</i> + 4 <sup>.3</sup> <i>a</i> + 11 <sup>.4</sup>	52 40 <sup>.55</sup>	-1 <sup>.65</sup>	38 <sup>.90</sup>	N	<i>b</i> - 0 <sup>.7</sup> <i>a</i> - 31 <sup>.7</sup>	53 11 <sup>.96</sup>	-1 <sup>.47</sup>	10 <sup>.49</sup>	31 <sup>.59</sup>				
	1541	+ 40 54	N	<i>s</i> <i>Q</i> - 1 <sup>.67</sup>	54 39 <sup>.02</sup>	-1 <sup>.66</sup>	37 <sup>.36</sup>	N	<i>s</i> <i>Q</i> - 1 <sup>.70</sup>	55 10 <sup>.50</sup>	-1 <sup>.45</sup>	9 <sup>.05</sup>	31 <sup>.69</sup>				
	1551	+ 21 25	S		56 27 <sup>.17</sup>	-1 <sup>.57</sup>	25 <sup>.60</sup>	S		56 59 <sup>.06</sup>	-1 <sup>.76</sup>	57 <sup>.30</sup>	31 <sup>.70</sup>				
	1562	+ 26 16	S		58 59 <sup>.89</sup>	-1 <sup>.59</sup>	58 <sup>.30</sup>	S		59 31 <sup>.74</sup>	-1 <sup>.68</sup>	30 <sup>.06</sup>	31 <sup>.76</sup>				
	1577	+ 28 7	N		5 1 35 <sup>.41</sup>	-1 <sup>.60</sup>	33 <sup>.81</sup>	N		5 2 7 <sup>.18</sup>	-1 <sup>.65</sup>	5 <sup>.53</sup>	31 <sup>.72</sup>				
	1591	+ 15 27	S		3 21 <sup>.18</sup>	-1 <sup>.55</sup>	19 <sup>.63</sup>	S		3 53 <sup>.21</sup>	-1 <sup>.83</sup>	51 <sup>.38</sup>	31 <sup>.75</sup>				
				Mean, T <sub>E</sub>	4 56 19												
Nov. 29	1228	+ 35 27	N	<i>I. P. E.</i>	3 51 31 <sup>.15</sup>	+ 1 <sup>.82</sup>	32 <sup>.97</sup>	N	<i>I. P. W.</i>	3 52 15 <sup>.84</sup>	+ 1 <sup>.78</sup>	17 <sup>.62</sup>	+ 0 44 <sup>.65</sup>				
	1238	+ 22 52	S	<i>d</i> <i>c</i> + 0 <sup>.2</sup>	54 8 <sup>.68</sup>	+ 1 <sup>.86</sup>	10 <sup>.54</sup>	S	<i>d</i> <i>c</i> - 0 <sup>.6</sup>	54 53 <sup>.51</sup>	+ 1 <sup>.60</sup>	55 <sup>.11</sup>	44 <sup>.57</sup>				
	1244	+ 9 40	S	<i>b</i> + 5 <sup>.9</sup> <i>a</i> + 12 <sup>.5</sup>	55 32 <sup>.00</sup>	+ 1 <sup>.91</sup>	33 <sup>.91</sup>	S	<i>b</i> - 0 <sup>.3</sup> <i>a</i> - 33 <sup>.2</sup>	56 16 <sup>.97</sup>	+ 1 <sup>.43</sup>	18 <sup>.40</sup>	44 <sup>.49</sup>				
	1257	+ 21 46	S	<i>s</i> <i>Q</i> + 1 <sup>.70</sup>	57 55 <sup>.46</sup>	+ 1 <sup>.87</sup>	57 <sup>.33</sup>	S	<i>s</i> <i>Q</i> + 1 <sup>.68</sup>	58 40 <sup>.24</sup>	+ 1 <sup>.58</sup>	41 <sup>.82</sup>	44 <sup>.49</sup>				
	1260	+ 21 41	S		58 33 <sup>.40</sup>	+ 1 <sup>.87</sup>	35 <sup>.27</sup>	S		59 18 <sup>.25</sup>	+ 1 <sup>.58</sup>	19 <sup>.83</sup>	44 <sup>.56</sup>				
	1260	+ 37 44	N		4 0 57 <sup>.49</sup>	+ 1 <sup>.80</sup>	59 <sup>.29</sup>	N		4 1 42 <sup>.08</sup>	+ 1 <sup>.82</sup>	43 <sup>.90</sup>	44 <sup>.61</sup>				
	1279	+ 26 10	N		3 50 <sup>.97</sup>	+ 1 <sup>.86</sup>	52 <sup>.83</sup>	N		4 35 <sup>.85</sup>	+ 1 <sup>.64</sup>	37 <sup>.49</sup>	44 <sup>.66</sup>				
			S		3 51 <sup>.04</sup>	+ 1 <sup>.86</sup>	52 <sup>.90</sup>	S		4 35 <sup>.86</sup>	+ 1 <sup>.64</sup>	37 <sup>.50</sup>	44 <sup>.60</sup>				
	1291	+ 40 11	N		7 4 <sup>.39</sup>	+ 1 <sup>.79</sup>	6 <sup>.18</sup>	N		7 48 <sup>.93</sup>	+ 1 <sup>.87</sup>	50 <sup>.80</sup>	44 <sup>.62</sup>				
			Mean, T <sub>E</sub>	3 59 16													
Nov. 29	1525	+ 13 20	S	<i>I. P. E.</i>	4 49 59 <sup>.39</sup>	-1 <sup>.50</sup>	57 <sup>.89</sup>	S	<i>I. P. W.</i>	4 50 44 <sup>.83</sup>	-1 <sup>.89</sup>	42 <sup>.94</sup>	+ 0 45 <sup>.05</sup>				
	1534	+ 39 13	N	<i>d</i> <i>a</i> + 0 <sup>.2</sup>	52 27 <sup>.47</sup>	-1 <sup>.60</sup>	25 <sup>.87</sup>	N	<i>d</i> <i>c</i> - 0 <sup>.6</sup>	53 12 <sup>.41</sup>	-1 <sup>.51</sup>	10 <sup>.90</sup>	45 <sup>.03</sup>				
	1535	+ 39 28	N	<i>b</i> + 5 <sup>.9</sup> <i>a</i> + 12 <sup>.5</sup>	52 31 <sup>.08</sup>	-1 <sup>.60</sup>	29 <sup>.48</sup>	N	<i>b</i> - 0 <sup>.3</sup> <i>a</i> - 33 <sup>.2</sup>	53 16 <sup>.09</sup>	-1 <sup>.50</sup>	14 <sup>.59</sup>	45 <sup>.11</sup>				
	1551	+ 21 25	S	<i>s</i> <i>Q</i> - 1 <sup>.70</sup>	56 17 <sup>.80</sup>	-1 <sup>.53</sup>	16 <sup>.27</sup>	S	<i>s</i> <i>Q</i> - 1 <sup>.68</sup>	57 3 <sup>.15</sup>	-1 <sup>.78</sup>	1 <sup>.37</sup>	45 <sup>.10</sup>				
	1562	+ 26 16	S		58 50 <sup>.60</sup>	-1 <sup>.54</sup>	49 <sup>.06</sup>	S		59 35 <sup>.87</sup>	-1 <sup>.72</sup>	34 <sup>.15</sup>	45 <sup>.09</sup>				
	1577	+ 28 7	N		5 1 25 <sup>.95</sup>	-1 <sup>.55</sup>	24 <sup>.40</sup>	N		5 2 11 <sup>.28</sup>	-1 <sup>.69</sup>	9 <sup>.59</sup>	45 <sup>.19</sup>				
	1591	+ 15 27	S		3 11 <sup>.82</sup>	-1 <sup>.50</sup>	10 <sup>.32</sup>	S		3 57 <sup>.29</sup>	-1 <sup>.86</sup>	55 <sup>.43</sup>	45 <sup>.11</sup>				
				Mean, T <sub>E</sub>	4 56 23												

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> .007 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> .016	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Nov. 30	1228	+ 35 27	N	<i>I. P. W.</i>	3 51 21.97	+ 1.58	23.55	N	<i>I. P. E.</i>	3 52 20.49	+ 1.76	22.25	+ 0 58.70				
	1244	+ 9 40	S	<i>d</i> c - 2.8	55 22.58	+ 1.78	24.36	S	<i>d</i> c - 3.9	56 21.51	+ 1.56	23.07	58.71				
	1257	+ 21 46	S	b + 2.0 a + 17.2	57 46.16	+ 1.70	47.86	S	b + 4.0 a - 18.6	58 44.88	+ 1.66	46.54	58.68				
	1260	+ 21 41	S	<i>s</i> Q + 1.68	58 24.02	+ 1.70	25.72	S	<i>s</i> Q + 1.69	59 22.88	+ 1.66	24.54	58.82				
	1269	+ 37 44	N		4 048.30	+ 1.57	49.87	N		4 146.86	+ 1.79	48.65	58.78	<i>m s</i> + 0 58.731			
	1279	+ 26 10	{	N		3 41.82	+ 1.67	43.49	N		4 40.55	+ 1.68	42.23	58.74			
		S			3 41.74	+ 1.67	43.41	S		4 40.50	+ 1.68	42.18	58.77				
	1291	+ 40 11	N		6 55.23	+ 1.54	56.77	N		7 53.61	+ 1.81	55.42	58.65				
				Mean, T <sub>E</sub>	3 59 45												
Nov. 30	1525	+ 13 20	S	<i>I. P. W.</i>	4 49 49.95	- 1.60	48.35	S	<i>I. P. E.</i>	4 50 49.38	- 1.79	47.59	+ 0 59.24				
	1534	+ 39 13	N	<i>d</i> c - 2.8	52 18.12	- 1.81	16.31	N	<i>d</i> c - 3.9	53 17.27	- 1.58	15.69	59.38				
	1535	+ 39 28	N	b + 2.0 a + 17.2	52 21.75	- 1.81	19.94	N	b + 4.0 a - 18.6	53 20.89	- 1.57	19.32	59.38				
	1541	+ 40 54	N	<i>s</i> Q - 1.68	54 20.38	- 1.82	18.56	N	<i>s</i> Q - 1.69	55 19.50	- 1.56	17.94	59.38				
	1551	+ 21 25	S		56 8.44	- 1.66	6.78	S		57 7.81	- 1.72	6.09	59.31	<i>m s</i> + 0 59.332			
	1562	+ 26 16	{	S		58 41.21	- 1.70	39.51	S		59 40.57	- 1.70	38.87	59.36			
		N			58 41.21	- 1.70	39.51	N		59 40.55	- 1.70	38.85	59.34				
	1677	+ 28 7	N		5 116.73	- 1.71	15.02	N		5 215.97	- 1.68	14.29	59.27				
	1691	+ 15 27	S		3 2.46	- 1.61	0.85	S		4 1.96	- 1.78	0.18	59.33				
				Mean, T <sub>E</sub>	4 56 18												
Dec. 1	1228	+ 35 27	N	<i>I. P. W.</i>	3 51 12.20	+ 1.66	13.86	N	<i>I. P. E.</i>	3 52 24.51	+ 1.64	26.15	+ 1 12.29				
	1238	+ 22 52	S	<i>d</i> c - 0.2	53 49.60	+ 1.77	51.37	S	<i>d</i> c - 7.6	55 2.21	+ 1.55	3.76	12.39				
	1244	+ 9 40	S	b + 3.0 a + 20.0	55 12.83	+ 1.87	14.70	S	b + 2.3 a - 21.3	56 25.57	+ 1.44	27.01	12.31				
	1257	+ 21 46	S	<i>s</i> Q + 1.67	57 36.41	+ 1.78	38.19	S	<i>s</i> Q + 1.71	58 48.93	+ 1.54	50.47	12.28				
	1260	+ 21 41	S		58 14.35	+ 1.78	16.13	S		59 26.95	+ 1.54	28.49	12.36	<i>m s</i> + 1 12.357			
	1269	+ 37 44	N		4 038.55	+ 1.63	40.18	N		4 150.84	+ 1.67	52.51	12.33				
	1279	+ 26 10	{	N		3 31.98	+ 1.75	33.73	N		4 44.55	+ 1.57	46.12	12.39			
	S			3 31.98	+ 1.75	33.73	S		4 44.58	+ 1.57	46.15	12.42					
	1291	+ 40 11	N		6 45.34	+ 1.61	46.95	N		7 57.69	+ 1.70	59.39	12.44				
				Mean, T <sub>E</sub>	3 58 57												

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\#12$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^{\circ} 28' 42''$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^{\circ} 12' 14''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^{\circ}.007$ $S_N - S_S = - 0^{\circ}.016$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881					<i>h m s</i>	<i>s</i>	<i>s</i>		<i>I. P. E.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 1	1525	+ 13 20	S	<i>I. P. W.</i>	4 49 40.22	-1.49	38.73	S	<i>I. P. E.</i>	4 50 53.56	-1.95	51.61	+ 1 12.88			
	1534	+ 39 13	N	$c - 0^{\circ}.2$ $b + 3^{\circ}.0$ $a + 20^{\circ}.0$	52 8.39	-1.71	6.68	N	$c - 7^{\circ}.6$ $b + 2^{\circ}.3$ $a - 21^{\circ}.3$	53 21.35	-1.73	19.62	12.94			
	1535	+ 39 28	N	$c - 0^{\circ}.2$ $b + 3^{\circ}.0$ $a + 20^{\circ}.0$	52 12.07	-1.72	10.35	N	$c - 7^{\circ}.6$ $b + 2^{\circ}.3$ $a - 21^{\circ}.3$	53 25.00	-1.73	23.27	12.92			
	1541	+ 40 54	N	$Q - 1^{\circ}.67$	54 10.63	-1.73	8.90	N	$Q - 1^{\circ}.71$	55 23.59	-1.72	21.87	12.97			
	1551	+ 21 25	S		55 58.65	-1.56	57.09	S		57 11.99	-1.88	10.11	13.02			
	1562	+ 26 16	S		58 31.40	-1.60	29.80	S		59 44.78	-1.85	42.93	13.13			
			N		58 31.48	-1.60	29.88	N		59 44.62	-1.85	42.77	12.89			
	1577	+ 28 7	N		5 1 6.94	-1.61	5.33	N		5 2 20.10	-1.84	18.26	12.93			
	1591	+ 15 27	S		2 52.65	-1.51	51.14	S		4 6.11	-1.92	4.19	13.05			
				Mean, $T_E$	4 56 8											
Dec. 2	1228	+ 35 27	N	<i>I. P. W.</i>	3 51 2.30	+1.71	4.01	N	<i>I. P. E.</i>	3 52 28.83	+1.62	30.45	+ 1 26.44			
	1238	+ 22 52	S	$c + 2^{\circ}.0$ $b + 3^{\circ}.1$ $a + 24^{\circ}.1$	53 39.58	+1.85	41.43	S	$c - 8^{\circ}.1$ $b + 2^{\circ}.2$ $a - 25^{\circ}.4$	55 6.37	+1.50	7.87	26.44			
	1244	+ 9 40	S	$c + 2^{\circ}.0$ $b + 3^{\circ}.1$ $a + 24^{\circ}.1$	55 2.79	+1.96	4.75	S	$c - 8^{\circ}.1$ $b + 2^{\circ}.2$ $a - 25^{\circ}.4$	56 29.83	+1.37	31.20	26.45			
	1257	+ 21 46	S	$Q + 1^{\circ}.68$	57 26.35	+1.86	28.21	S	$Q + 1^{\circ}.69$	58 53.15	+1.49	54.64	26.43			
	1260	+ 21 41	S		58 4.31	+1.85	6.16	S		59 31.25	+1.49	32.74	26.58			
	1260	+ 37 44	N		4 0 28.52	+1.69	30.21	N		4 1 55.19	+1.65	56.84	26.63			
	1279	+ 26 10	N		3 22.00	+1.82	23.82	N		4 48.84	+1.54	50.38	26.56			
			S		3 21.93	+1.82	23.75	S		4 48.81	+1.54	50.35	26.60			
	1291	+ 40 11	N		6 35.37	+1.67	37.04	N		8 2.00	+1.69	3.69	26.65			
				Mean, $T_E$	3 58 47											
Dec. 2	1525	+ 13 20	S	<i>I. P. W.</i>	4 49 30.13	-1.43	28.70	S	<i>I. P. E.</i>	4 50 57.73	-1.97	55.76	+ 1 27.06			
	1534	+ 39 13	N	$c + 2^{\circ}.0$ $b + 3^{\circ}.1$ $a + 24^{\circ}.1$	51 58.47	-1.68	56.79	N	$c - 8^{\circ}.1$ $b + 2^{\circ}.2$ $a - 25^{\circ}.4$	53 25.62	-1.71	23.91	27.12			
	1535	+ 39 28	N	$c + 2^{\circ}.0$ $b + 3^{\circ}.1$ $a + 24^{\circ}.1$	52 2.10	-1.68	0.42	N	$c - 8^{\circ}.1$ $b + 2^{\circ}.2$ $a - 25^{\circ}.4$	53 29.27	-1.70	27.57	27.15			
	1541	+ 40 54	N	$Q - 1^{\circ}.68$	53 60.64	-1.70	58.94	N	$Q - 1^{\circ}.69$	55 27.85	-1.69	26.16	27.22			
	1551	+ 21 25	S		55 48.66	-1.51	47.15	S		57 16.18	-1.89	14.29	27.14			
	1562	+ 26 16	S		58 21.40	-1.55	19.85	S		59 48.84	-1.84	47.00	27.15			
			N		58 21.41	-1.55	19.86	N		59 48.88	-1.84	47.04	27.18			
	1577	+ 28 7	N		5 0 56.86	-1.56	55.30	N		5 2 24.39	-1.83	22.56	27.26			
	1591	+ 15 27	S		2 42.61	-1.45	41.16	S		4 10.35	-1.95	8.40	27.24			
				Mean, $T_E$	4 55 58											

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *iii*, all records having been transcribed by the same person.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persn. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> .007 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>h</sup> .016	δI <sub>N</sub> - ρ
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Nov. 25	1040	+ 27 12	N	<i>I. P. E.</i>	3 15 57.04	+ 2.07	59.11	N	<i>I. P. W.</i>	3 32 25.18	+ 1.76	26.94	16 27.83				
	1053	+ 20 23	S	$\begin{matrix} d \\ c - 2.4 \\ b + 4.2 \\ a + 8.1 \end{matrix}$ $\begin{matrix} s \\ Q + 2.02 \end{matrix}$	18 27.80	+ 2.08	29.88	S	$\begin{matrix} d \\ c + 5.4 \\ b - 2.8 \\ a - 18.8 \end{matrix}$ $\begin{matrix} s \\ Q + 1.69 \end{matrix}$	34 56.08	+ 1.70	57.78	27.90	$\begin{matrix} m s \\ 16 27.865 \end{matrix}$	+ 0.108	- 0.011	16 27.962
Nov. 25	1114	+ 15 2	S	<i>I. P. E.</i>	3 32 4.27	- 1.94	2.33	S	<i>I. P. W.</i>	3 48 31.79	- 1.72	30.07	16 27.74				
	1123	+ 37 12	N	$\begin{matrix} d \\ c - 2.4 \\ b + 4.2 \\ a + 8.1 \end{matrix}$	34 21.39	- 2.01	19.38	N	$\begin{matrix} d \\ c + 5.4 \\ b - 2.8 \\ a - 18.8 \end{matrix}$	50 48.71	- 1.53	47.18	27.80				
	1132	+ 33 35	N	$\begin{matrix} d \\ c - 2.4 \\ b + 4.2 \\ a + 8.1 \end{matrix}$	35 48.10	- 2.00	46.10	N	$\begin{matrix} d \\ c + 5.4 \\ b - 2.8 \\ a - 18.8 \end{matrix}$	52 15.39	- 1.56	13.83	27.73				
	1138	+ 31 55	N	$\begin{matrix} s \\ Q - 2.02 \end{matrix}$	37 49.33	- 1.99	47.34	N	$\begin{matrix} s \\ Q - 1.69 \end{matrix}$	54 16.71	- 1.58	15.13	27.79				
	1151	+ 24 6	N		39 5.00	- 1.97	3.03	S		55 32.47	- 1.64	30.83	27.80	$\begin{matrix} m s \\ 16 27.750 \end{matrix}$	+ 0.108	- 0.013	16 27.845
	1154	+ 24 0	N		39 42.28	- 1.97	40.31	S		56 9.70	- 1.64	8.06	27.75				
	1166	+ 23 44	S		41 22.15	- 1.97	20.18	S		57 49.53	- 1.65	47.88	27.70				
	1192	+ 25 13	S		44 7.31	- 1.97	5.34	S		60 34.67	- 1.64	33.03	27.69				
Nov. 28	953	+ 38 23	N	<i>I. P. E.</i>	2 57 59.52	+ 1.69	61.21	N	<i>I. P. W.</i>	3 14 26.94	+ 1.91	28.85	16 27.64				
	963	+ 40 30	N	$\begin{matrix} d \\ c - 1.1 \end{matrix}$	3 0 52.14	+ 1.68	53.82	N	$\begin{matrix} d \\ c + 1.8 \end{matrix}$	17 19.53	+ 1.95	21.48	27.66				
	999	+ 20 36	S	$\begin{matrix} b + 4.3 \\ a + 11.4 \end{matrix}$	8 29.12	+ 1.77	30.89	S	$\begin{matrix} b - 0.7 \\ a - 31.7 \end{matrix}$	24 56.80	+ 1.63	58.43	27.54				
	1017	+ 33 47	N	$\begin{matrix} s \\ Q + 1.67 \end{matrix}$	11 43.44	+ 1.72	45.16	N	$\begin{matrix} s \\ Q + 1.70 \end{matrix}$	28 10.88	+ 1.83	12.71	27.55				
	1029	+ 25 14	S		13 48.01	+ 1.76	49.77	S		30 15.52	+ 1.70	17.22	27.45	$\begin{matrix} m s \\ 16 27.512 \end{matrix}$	+ 0.108	- 0.013	16 27.607
	1040	+ 27 12	$\begin{matrix} S \\ N \end{matrix}$		15 29.04	+ 1.75	30.79	S		31 56.52	+ 1.73	58.25	27.46				
					15 29.06	+ 1.75	30.81	N		31 56.48	+ 1.73	58.21	27.40				
	1053	+ 20 23	S		17 59.86	+ 1.77	61.63	S		34 27.41	+ 1.63	29.04	27.41				
	1069	+ 22 24	S		21 54.65	+ 1.76	56.41	S		38 22.25	+ 1.66	23.91	27.50				

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrus. for Persl. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$	$\delta L_N - \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Nov.28	1114	+15 2	S	<i>I. P. E.</i>	3 31 35.56	-1.55	34.01	S	<i>I. P. W.</i>	3 48 3.23	-1.84	1.39	16 27.38				
	1123	+37 12	N	<i>d</i> $c - 1.1$	33 52.72	-1.64	51.08	N	<i>d</i> $c + 1.8$	50 20.07	-1.51	18.56	27.48				
	1132	+33 35	N	$b + 4.3$ $a + 11.4$	35 19.43	-1.62	17.81	N	$b - 0.7$ $a - 31.7$	51 46.86	-1.57	45.29	27.48				
	1138	+31 55	N	<i>s</i> $Q - 1.67$	37 20.70	-1.62	19.08	N	<i>s</i> $Q - 1.70$	53 48.11	-1.60	46.51	27.43				
	1151	+24 6	N		38 36.30	-1.58	34.72	S		55 3.83	-1.71	2.12	27.40	<i>m s</i> 16 27.413	+ 0.108		
	1154	+24 0	N		39 13.61	-1.58	12.03	S		55 41.07	-1.71	39.36	27.33				
	1166	+23 44	S		40 53.42	-1.58	51.84	S		57 20.94	-1.72	19.22	27.38				
	1192	+25 13	S		43 38.53	-1.58	36.95	S		60 6.07	-1.70	4.37	27.42				
Nov.29	953	+38 23	N	<i>I. P. E.</i>	2 57 50.02	+1.81	51.83	N	<i>I. P. W.</i>	3 14 17.61	+1.84	19.45	16 27.62				
	963	+40 30	N	<i>d</i> $c + 0.2$	3 042.64	+1.79	44.43	N	<i>d</i> $c - 0.6$	17 10.26	+1.88	12.14	27.71				
	999	+20 36	S	$b + 5.9$ $a + 12.5$	8 19.73	+1.87	21.60	S	$b - 0.3$ $a - 33.2$	24 47.48	+1.57	49.05	27.45				
	1017	+33 47	N	<i>s</i> $Q + 1.70$	11 33.89	+1.83	35.72	N	<i>s</i> $Q + 1.68$	28 1.52	+1.75	3.27	27.55				
	1029	+25 14	S		13 38.50	+1.87	40.37	S		30 6.25	+1.62	7.87	27.50	<i>m s</i> 16 27.546	+ 0.106		
	1040	+27 12	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		15 19.55	+1.86	21.41	S		31 47.22	+1.65	48.87	27.46				
					15 19.42	+1.86	21.28	N		31 47.21	+1.65	48.86	27.58				
	1053	+20 23	S		17 50.31	+1.87	52.18	S		34 18.15	+1.57	19.72	27.54				
	1069	+22 24	S		21 45.22	+1.86	47.08	S		38 12.99	+1.59	14.58	27.50				
Nov.29	1114	+15 2	S	<i>I. P. E.</i>	3 31 26.13	-1.51	24.62	S	<i>I. P. W.</i>	3 47 53.93	-1.86	52.07	16 27.45				
	1123	+37 12	N	<i>d</i> $c + 0.2$	33 43.25	-1.59	41.66	N	<i>d</i> $c - 0.6$	50 10.68	-1.55	9.13	27.47				
	1132	+33 35	N	$b + 5.9$ $a + 12.5$	35 9.95	-1.57	8.38	N	$b - 0.3$ $a - 33.2$	51 37.46	-1.61	35.85	27.47				
	1138	+31 55	N	<i>s</i> $Q - 1.70$	37 11.18	-1.56	9.62	N	<i>s</i> $Q - 1.68$	53 38.73	-1.64	37.09	27.47				
	1151	+24 6	N		38 26.84	-1.52	25.32	S		54 54.55	-1.75	52.80	27.48	<i>m s</i> 16 27.478	+ 0.106		
	1154	+24 0	N		39 4.06	-1.52	2.54	S		55 31.81	-1.75	30.06	27.52				
	1166	+23 44	S		40 43.98	-1.53	42.45	S		57 11.68	-1.76	9.92	27.47				
	1192	+25 13	S		43 29.09	-1.53	27.56	S		59 56.79	-1.74	55.05	27.49				

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Peral. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Nov. 30	953	+38 23	N	<i>I. P. W.</i>	2 57 40.70	+1.56	42.26	N	<i>I. P. E.</i>	3 14 8.37	+1.79	10.16	16 27.90			
	963	+40 30	N	<i>c - 2.8</i>	3 0 33.38	+1.54	34.92	N	<i>d</i>	17 1.09	+1.82	2.91	27.99			
	999	+20 36	S	<i>b + 2.0</i> <i>a + 17.2</i>	8 10.34	+1.70	12.04	S	<i>b + 4.0</i> <i>a - 18.6</i>	24 38.38	+1.65	40.03	27.99			
	1017	+33 47	N	<i>s</i>	11 24.62	+1.59	26.21	N	<i>s</i>	27 52.36	+1.75	54.11	27.90			
	1029	+25 14	S	<i>Q + 1.68</i>	13 29.21	+1.67	30.88	S	<i>Q + 1.69</i>	29 57.04	+1.68	58.72	27.84			
	1040	+27 12	{	{	15 10.21	+1.66	11.87	S	{	31 38.05	+1.69	39.74	27.87			
	1053	+20 23			15 10.22	+1.66	11.88	N		31 38.09	+1.69	39.78	27.90			
Nov. 30	1114	+15 2	S	<i>I. P. W.</i>	3 31 16.73	-1.61	15.12	S	<i>I. P. E.</i>	3 47 45.02	-1.78	43.24	16 28.12			
	1123	+37 12	N	<i>c - 2.8</i>	33 33.99	-1.79	32.20	N	<i>d</i>	50 1.94	-1.60	0.34	28.14			
	1132	+33 35	N	<i>b + 2.0</i> <i>a + 17.2</i>	34 60.73	-1.77	58.96	N	<i>b + 4.0</i> <i>a - 18.6</i>	51 28.70	-1.63	27.07	28.11			
	1138	+31 55	N	<i>s</i>	37 1.94	-1.74	0.20	N	<i>s</i>	53 29.91	-1.64	28.27	28.07			
	1151	+24 6	S	<i>Q - 1.68</i>	38 17.48	-1.68	15.80	S	<i>Q - 1.69</i>	54 45.63	-1.71	43.92	28.12			
	1154	+24 0	S		38 54.72	-1.68	53.04	S		55 22.88	-1.71	21.17	28.13			
	1166	+23 44	S		40 34.70	-1.68	33.02	S		57 2.79	-1.72	1.07	28.05			
	1192	+25 13	S		43 19.79	-1.69	18.10	S		59 47.96	-1.70	46.26	28.16			
Dec. 1	963	+40 30	N	<i>I. P. W.</i>	3 0 23.71	+1.61	25.32	N	<i>I. P. E.</i>	3 16 51.45	+1.69	53.14	16 27.82			
	1017	+33 47	N	<i>c - 0.2</i>	11 14.94	+1.67	16.61	N	<i>d</i>	27 42.95	+1.63	44.58	27.97			
	1029	+25 14	S	<i>b + 3.0</i> <i>a + 20.0</i>	13 19.50	+1.74	21.24	S	<i>b + 2.3</i> <i>a - 21.3</i>	29 47.65	+1.56	49.21	27.97			
	1040	+27 12	{	{	15 0.48	+1.74	2.22	S	{	31 28.60	+1.58	30.18	27.96			
	1053	+20 23			15 0.50	+1.74	2.24	N		31 28.53	+1.58	30.11	27.87			
	1069	+22 24	S		17 31.29	+1.79	33.08	S		33 59.56	+1.52	61.08	28.00			
					21 26.13	+1.78	27.91	S		37 54.31	+1.55	55.86	27.95			

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 1	1114	+15 2	S	<i>I. P. W.</i>	3 31 6.99	-1.50	5.49	S	<i>I. P. E.</i>	3 47 35.45	-1.93	33.52	16 28.03			
	1123	+37 12	N	<i>c - 0.2</i>	33 24.31	-1.70	22.61	N	<i>c - 7.6</i>	49 52.24	-1.76	50.48	27.87			
	1132	+33 35	N	<i>b + 3.0</i> <i>a + 20.0</i>	34 50.99	-1.66	49.33	N	<i>b + 2.3</i> <i>a - 21.3</i>	51 18.94	-1.80	17.14	27.81			
	1138	+31 55	N	<i>s</i> <i>Q - 1.67</i>	36 52.16	-1.65	50.51	N	<i>s</i> <i>Q - 1.71</i>	53 20.23	-1.80	18.43	27.92			
	1151	+24 6	S		38 7.85	-1.59	6.26	S		54 35.98	-1.87	34.11	27.85	<i>m s</i> 16 27.919	+ 0.112	
	1154	+24 0	S		38 45.11	-1.59	43.52	S		55 13.32	-1.87	11.45	27.93			
	1166	+23 44	S		40 24.94	-1.58	23.36	S		56 53.20	-1.87	51.33	27.97			
	1192	+25 13	S		43 10.08	-1.60	8.48	S		59 38.31	-1.86	36.45	27.97			
Dec. 2	953	+38 23	N	<i>I. P. W.</i>	2 57 21.05	+1.69	22.74	N	<i>I. P. E.</i>	3 13 48.94	+1.66	50.60	16 27.86			
	963	+40 30	N	<i>c + 2.0</i>	3 0 13.68	+1.66	15.34	N	<i>c - 8.1</i>	16 41.63	+1.68	43.31	27.97			
	999	+20 36	S	<i>b + 3.1</i> <i>a + 24.1</i>	7 50.55	+1.86	52.41	S	<i>b + 2.2</i> <i>a - 25.4</i>	24 18.82	+1.48	20.30	27.89			
	1017	+33 47	N	<i>s</i> <i>Q + 1.68</i>	11 4.89	+1.73	6.62	N	<i>s</i> <i>Q + 1.69</i>	27 33.00	+1.61	34.61	27.99			
	1029	+25 14	S		13 9.38	+1.83	11.21	S		29 37.68	+1.52	39.20	27.99	<i>m s</i> 16 27.939	+ 0.113	
	1040	+27 12	{ S N		14 50.37	+1.81	52.18	S		31 18.64	+1.55	20.19	28.01			
					14 50.44	+1.81	52.25	N		31 18.63	+1.55	20.18	27.93			
	1053	+20 23	S		17 21.25	+1.86	23.11	S		33 49.53	+1.48	51.01	27.90			
	1069	+22 24	S		21 16.10	+1.85	17.95	S		37 44.36	+1.50	45.86	27.91			
Dec. 2	1114	+15 2	S	<i>I. P. W.</i>	3 30 56.93	-1.44	55.49	S	<i>I. P. E.</i>	3 47 25.46	-1.95	23.51	16 28.02			
	1123	+37 12	N	<i>c + 2.0</i>	33 14.27	-1.65	12.62	N	<i>c - 8.1</i>	49 42.36	-1.74	40.62	28.00			
	1132	+33 35	N	<i>b + 3.1</i> <i>a + 24.1</i>	34 41.01	-1.63	39.38	N	<i>b + 2.2</i> <i>a - 25.4</i>	51 9.08	-1.77	7.31	27.93			
	1138	+31 55	N	<i>s</i> <i>Q - 1.68</i>	36 42.21	-1.61	40.60	N	<i>s</i> <i>Q - 1.69</i>	53 10.34	-1.78	8.56	27.96			
	1151	+24 6	S		37 57.74	-1.52	56.22	S		54 26.08	-1.87	24.21	27.99	<i>m s</i> 16 27.965	+ 0.113	
	1154	+24 0	S		38 35.06	-1.52	33.54	S		55 3.34	-1.87	1.47	27.93			
	1166	+23 44	S		40 14.95	-1.52	13.43	S		56 43.27	-1.88	41.39	27.96			
	1192	+25 13	S		42 60.10	-1.53	58.57	S		59 28.36	-1.86	26.50	27.93			

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Corras for Persl. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group	
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Nov. 25	1620	+ 22 9	S	<i>I. P. E.</i>	4 52 34.50	+ 2.08	36.58	S	<i>I. P. W.</i>	5 9 2.86	+ 1.71	4.57	16 27.99		
	1629	+ 33 38	N	<i>c - 2.4</i> <i>d</i>	54 45.67	+ 2.04	47.71	N	<i>c + 5.4</i> <i>d</i>	11 13.93	+ 1.82	15.75	28.04		
	1632	+ 33 37	N	<i>b + 4.2</i> <i>a + 8.1</i>	55 26.86	+ 2.04	28.90	N	<i>b - 2.8</i> <i>a - 18.8</i>	11 55.06	+ 1.82	56.88	27.98		
	1648	+ 27 50	<i>N</i> <i>S</i>	<i>Q + 2.02</i> <i>S</i>	57 47.35	+ 2.07	49.42	N	<i>Q + 1.69</i> <i>S</i>	14 15.63	+ 1.77	17.40	27.98		
	1663	+ 37 16	N		5 05.80	+ 2.03	52.83	N		17 18.94	+ 1.85	20.79	27.96	<i>m s</i> 16 28.002	
	1681	+ 28 30	N		3 2.41	+ 2.06	4.47	N		19 30.73	+ 1.77	32.50	28.03		
	1701	+ 15 46	S		5 11.12	+ 2.10	13.22	S		21 39.52	+ 1.66	41.18	27.96		
	1711	+ 20 27	S		7 26.50	+ 2.08	28.58	S		23 54.93	+ 1.70	56.63	28.05		
Nov. 25	1746	+ 27 35	<i>S</i> <i>N</i>	<i>I. P. E.</i> <i>c - 2.4</i> <i>d</i>	5 12 47.85	- 1.97	45.88	S	<i>I. P. W.</i> <i>c + 5.4</i> <i>d</i>	5 29 15.32	- 1.62	13.70	16 27.82		
	1768	+ 30 25	N	<i>b + 4.2</i> <i>a + 8.1</i>	12 47.79	- 1.97	45.82	N	<i>b - 2.8</i> <i>a - 18.8</i>	29 15.27	- 1.62	13.65	27.83		
	1792	+ 16 28	S	<i>Q - 2.02</i> <i>S</i>	15 20.07	- 1.98	18.09	N	<i>Q - 1.69</i> <i>S</i>	31 47.65	- 1.59	46.06	27.97		
	1805	+ 14 7	S		18 44.90	- 1.95	42.95	S		35 12.53	- 1.71	10.82	27.87		
	1811	+ 18 39	S		20 32.61	- 1.95	30.66	S		36 60.31	- 1.73	58.58	27.92	<i>m s</i> 16 27.879	
	1824	+ 39 30	N		22 32.14	- 1.95	30.19	S		38 59.81	- 1.70	58.11	27.92		
	1824	+ 39 30	N		24 56.39	- 2.02	54.37	N		41 23.71	- 1.49	22.22	27.85		
	1830	+ 39 8	N		25 16.87	- 2.02	14.85	N		41 44.22	- 1.50	42.72	27.87		
	1845	+ 39 7	N		27 35.64	- 2.02	33.62	N		44 2.98	- 1.50	1.48	27.86		
Nov. 28	1620	+ 22 9	S	<i>I. P. E.</i>	4 52 47.51	+ 1.76	49.27	S	<i>I. P. W.</i>	5 9 15.19	+ 1.65	16.84	16 27.57		
	1629	+ 33 38	N	<i>c - 1.1</i> <i>d</i>	54 58.71	+ 1.72	60.43	N	<i>c + 1.8</i> <i>d</i>	11 26.20	+ 1.83	28.03	27.60		
	1632	+ 33 37	N	<i>b + 4.3</i> <i>a + 11.4</i>	55 39.86	+ 1.72	41.58	N	<i>b - 0.7</i> <i>a - 31.7</i>	12 7.44	+ 1.83	9.27	27.69		
	1648	+ 27 50	<i>N</i> <i>S</i>	<i>Q + 1.67</i> <i>S</i>	58 0.36	+ 1.74	2.10	N	<i>Q + 1.70</i> <i>S</i>	14 27.92	+ 1.74	29.66	27.56		
	1681	+ 28 30	N		58 0.33	+ 1.74	2.07	S		14 27.94	+ 1.74	29.68	27.61	<i>m s</i> 16 27.606	
	1681	+ 28 30	N		5 3 15.55	+ 1.74	17.29	N		19 43.14	+ 1.75	44.89	27.60		
	1701	+ 15 46	S		5 24.12	+ 1.79	25.91	S		21 51.90	+ 1.57	53.47	27.56		
	1711	+ 20 27	S		7 39.51	+ 1.77	41.28	S		24 7.31	+ 1.63	8.94	27.66		

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1				TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2				Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group	
1881		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Nov.28	1746	+ 27 35	S	<i>I. P. E.</i>	5 12 60.10	-1.59	58.51	S	<i>I. P. W.</i>	5 29 27.78	-1.66	26.12	16 27.61		
	1768	+ 30 25	N	<i>d</i>	15 32.50	-1.61	30.89	N	<i>d</i>	31 60.05	-1.62	58.43	27.54		
	1792	+ 16 28	S	<i>c + 1.1</i> <i>b + 4.3</i> <i>a + 11.4</i>	18 57.15	-1.55	55.60	S	<i>c + 1.8</i> <i>b - 0.7</i> <i>a - 31.7</i>	35 25.03	-1.82	23.21	27.61		
	1805	+ 14 7	S	<i>s</i>	20 44.89	-1.54	43.35	S	<i>s</i>	37 12.78	-1.85	10.93	27.58		
	1824	+ 39 30	N	<i>Q - 1.67</i>	25 8.72	-1.65	7.07	N	<i>Q - 1.70</i>	41 36.10	-1.47	34.63	27.56	<i>m s</i> 16 27.601	16 27.544
	1830	+ 39 8	N		25 29.20	-1.65	27.55	N		41 56.64	-1.48	55.16	27.61		
	1845	+ 39 7	N		27 47.88	-1.65	46.23	N		44 15.41	-1.48	13.93	27.70		
Nov.29	1620	+ 22 9	S	<i>I. P. E.</i>	4 52 51.50	+1.86	53.36	S	<i>I. P. W.</i>	5 9 19.38	+1.59	20.97	16 27.61		
	1629	+ 33 38	N	<i>d</i>	55 2.67	+1.83	4.50	N	<i>d</i>	11 30.28	+1.75	32.03	27.53		
	1632	+ 33 37	N	<i>c + 0.2</i> <i>b + 5.9</i> <i>a + 12.5</i>	55 43.85	+1.83	45.68	N	<i>c - 0.6</i> <i>b - 0.3</i> <i>a - 33.2</i>	12 11.45	+1.75	13.20	27.52		
	1648	+ 27 50	N	<i>s</i>	58 4.34	+1.85	6.19	N	<i>s</i>	14 32.06	+1.66	33.72	27.53		
			S	<i>Q + 1.70</i>	58 4.38	+1.85	6.23	S	<i>Q + 1.68</i>	14 32.07	+1.66	33.73	27.50	<i>m s</i> 16 27.530	16 27.472
	1663	+ 37 16	N		5 1 7.76	+1.81	9.57	N		17 35.38	+1.81	37.19	27.62		
	1681	+ 28 30	N		3 19.45	+1.85	21.30	N		19 47.16	+1.67	48.83	27.53		
	1701	+ 15 46	S		5 28.13	+1.90	30.03	S		21 55.98	+1.51	57.49	27.46		
	1711	+ 20 27	S		7 43.58	+1.87	45.45	S		24 11.35	+1.57	12.92	27.47		
Nov.29	1746	+ 27 35	S	<i>I. P. E.</i>	5 13 4.00	-1.55	2.45	S	<i>I. P. W.</i>	5 29 31.88	-1.70	30.18	16 27.73		
			N	<i>d</i>	13 4.03	-1.55	2.48	N	<i>d</i>	29 31.89	-1.70	30.19	27.71		
	1768	+ 30 25	N	<i>c + 0.2</i> <i>b + 5.9</i> <i>a + 12.5</i>	15 36.39	-1.56	34.83	N	<i>c - 0.6</i> <i>b - 0.3</i> <i>a - 33.2</i>	32 4.16	-1.66	2.50	27.67		
	1792	+ 16 28	S	<i>s</i>	18 61.28	-1.51	59.77	S	<i>s</i>	35 29.18	-1.85	27.33	27.56		
	1805	+ 14 7	S	<i>Q - 1.70</i>	20 48.92	-1.51	47.41	S	<i>Q - 1.68</i>	37 16.90	-1.88	15.02	27.61		
	1811	+ 18 39	S		22 48.51	-1.52	46.99	S		39 16.43	-1.82	14.61	27.62		
	1824	+ 39 30	N		25 12.68	-1.60	11.08	N		41 40.24	-1.50	38.74	27.66		
	1845	+ 39 7	N		27 51.97	-1.60	50.37	N		44 19.48	-1.51	17.97	27.60	<i>m s</i> 16 27.645	16 27.585

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 13^m 14^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881					<i>h m s</i>	<i>s</i>	<i>s</i>		<i>h m s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Nov. 30	1620	+ 22 9	S	<i>I. P. W.</i>	4 52 55.59	+ 1.69	57.28	S	<i>I. P. E.</i>	5 9 24.07	+ 1.66	25.73	16 28.45			
	1629	+ 33 38	N	<i>c - 2.8</i> <i>d</i>	55 6.88	+ 1.59	8.47	N	<i>c - 3.9</i> <i>d</i>	11 35.20	+ 1.75	36.95	28.48			
	1632	+ 33 37	N	<i>b + 2.0</i> <i>a + 17.2</i>	55 48.00	+ 1.59	49.59	N	<i>b + 4.0</i> <i>a - 18.6</i>	12 16.33	+ 1.75	18.08	28.49			
	1648	+ 27 50	{ S N	<i>Q + 1.68</i> <i>s</i>	58 8.50	+ 1.65	10.15	N	<i>Q + 1.69</i> <i>s</i>	14 36.86	+ 1.70	38.56	28.41			
					58 8.48	+ 1.65	10.13	S		14 36.84	+ 1.70	38.54	28.41			
	1663	+ 37 16	N		5 112.06	+ 1.57	13.63	N		17 40.26	+ 1.78	42.04	28.41			
	1681	+ 28 30	N		3 23.67	+ 1.65	25.32	N		19 52.02	+ 1.70	53.72	28.40			
	1701	+ 15 46	S		5 32.22	+ 1.75	33.97	S		22 0.72	+ 1.60	2.32	28.35			
	1711	+ 20 27	S		7 47.68	+ 1.70	49.38	S		24 16.19	+ 1.65	17.84	28.46			
Nov. 30	1746	+ 27 35	{ S N	<i>I. P. W.</i> <i>c - 2.8</i> <i>d</i>	5 13 8.33	- 1.71	6.62	S	<i>I. P. E.</i> <i>c - 3.9</i> <i>d</i>	5 29 36.68	- 1.69	34.99	16 28.37			
					13 8.31	- 1.71	6.60	N		29 36.66	- 1.69	34.97	28.37			
	1768	+ 30 25	N	<i>b + 2.0</i> <i>a + 17.2</i>	15 40.72	- 1.73	38.99	N	<i>b + 4.0</i> <i>a - 18.6</i>	32 8.95	- 1.66	7.29	28.30			
	1792	+ 16 28	S	<i>Q - 1.68</i> <i>s</i>	19 5.39	- 1.62	3.77	S	<i>Q - 1.69</i> <i>s</i>	35 33.92	- 1.77	32.15	28.38			
	1805	+ 14 7	S		20 53.08	- 1.60	51.48	S		37 21.58	- 1.79	19.79	28.31			
	1811	+ 18 39	S		22 52.65	- 1.64	51.01	S		39 21.16	- 1.76	19.40	28.39			
	1824	+ 39 30	N		25 16.96	- 1.81	15.15	N		41 45.22	- 1.57	43.65	28.50			
	1830	+ 39 8	N		25 37.50	- 1.81	35.69	N		42 5.65	- 1.58	4.07	28.38			
	1845	+ 39 7	N		27 56.18	- 1.81	54.37	N		44 24.44	- 1.58	22.86	28.49			
Dec. 1	1620	+ 22 9	S	<i>I. P. W.</i>	4 52 59.66	+ 1.78	61.44	S	<i>I. P. E.</i>	5 9 28.21	+ 1.55	29.76	16 28.32			
	1629	+ 33 38	N	<i>c - 0.2</i> <i>d</i>	55 10.95	+ 1.68	12.63	N	<i>c - 7.6</i> <i>d</i>	11 39.25	+ 1.62	40.87	28.24			
	1632	+ 33 37	N	<i>b + 3.0</i> <i>a + 20.0</i>	55 52.10	+ 1.68	53.78	N	<i>b + 2.3</i> <i>a - 21.3</i>	12 20.42	+ 1.62	22.04	28.26			
	1648	+ 27 50	{ N S	<i>Q + 1.67</i> <i>s</i>	58 12.52	+ 1.73	14.25	N	<i>Q + 1.71</i> <i>s</i>	14 40.91	+ 1.59	42.50	28.25			
					58 12.52	+ 1.73	14.25	S		14 40.97	+ 1.59	42.56	28.31			
	1681	+ 28 30	N		5 3 27.64	+ 1.72	29.36	N		19 56.04	+ 1.58	57.62	28.26			
	1701	+ 15 46	S		5 36.19	+ 1.83	38.02	S		22 4.87	+ 1.49	6.36	28.34			
	1711	+ 20 27	S		7 51.64	+ 1.79	53.43	S		24 20.30	+ 1.52	21.82	28.39			

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.007$ $S_N - S_S = - 0^s.016$
			Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881 Dec. 1	1746	+ 27 35	S	<i>I. P. W.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	S	<i>I. P. E.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
			N	<i>c - 0.2</i> <i>b + 3.0</i> <i>a + 20.0</i>	5 13 12.23	-1.61	10.62	N	<i>c - 7.6</i> <i>b + 2.3</i> <i>a - 21.3</i>	5 29 40.80	-1.84	38.96	16 28.34			
	1768	+ 30 25	N	<i>Q - 1.67</i>	13 12.25	-1.61	10.64	N	<i>Q - 1.71</i>	29 40.72	-1.84	38.88	28.24			
	1792	+ 16 28	S		15 44.58	-1.63	42.95	N		32 13.06	-1.82	11.24	28.29			
	1805	+ 14 7	S		19 9.34	-1.52	7.82	S		35 38.06	-1.92	36.14	28.32			
	1811	+ 18 39	S		20 57.00	-1.50	55.50	S		37 25.72	-1.94	23.78	28.28			
	1824	+ 39 30	N		22 56.63	-1.53	55.10	S		39 25.26	-1.91	23.35	28.25			
	1830	+ 39 8	N		25 20.90	-1.72	19.18	N		41 49.22	-1.73	47.49	28.31			
Dec. 2	1845	+ 39 7	N		25 41.36	-1.72	39.64	N		42 9.68	-1.73	7.95	28.31			
					27 60.18	-1.72	58.46	N		44 28.43	-1.73	26.70	28.24			
	1620	+ 22 9	S	<i>I. P. W.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	S	<i>I. P. E.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
	1629	+ 33 38	N	<i>c - 2.0</i> <i>b + 3.1</i> <i>a + 24.1</i>	4 53 3.75	+1.86	5.61	N	<i>c - 8.1</i> <i>b + 2.2</i> <i>a - 25.4</i>	5 9 32.42	+1.50	33.92	16 28.31			
	1632	+ 33 37	N	<i>Q + 1.68</i>	55 15.03	+1.73	16.76	N	<i>Q + 1.69</i>	11 43.53	+1.61	45.14	28.38			
	1648	+ 27 50	S		55 56.17	+1.73	57.90	N		12 24.66	+1.61	26.27	28.37			
	1663	+ 37 16	N		58 16.62	+1.80	18.42	N		14 45.22	+1.56	46.78	28.36			
	1681	+ 28 30	N		58 16.64	+1.80	18.44	S		14 45.16	+1.56	46.72	28.28			
Dec. 2	1701	+ 15 46	S		5 120.16	+1.71	21.87	N		17 48.57	+1.64	50.21	28.34			
	1711	+ 20 27	S		3 31.80	+1.79	33.59	N		20 0.38	+1.56	1.94	28.35			
	1746	+ 27 35	S	<i>I. P. W.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	S	<i>I. P. E.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
	1768	+ 30 25	N	<i>c - 2.0</i> <i>b + 3.1</i> <i>a + 24.1</i>	5 13 16.38	-1.56	14.82	N	<i>c - 8.1</i> <i>b + 2.2</i> <i>a - 25.4</i>	5 29 45.02	-1.82	43.20	16 28.38			
	1792	+ 16 28	S	<i>Q - 1.68</i>	13 16.48	-1.56	14.92	N	<i>Q - 1.69</i>	29 45.00	-1.82	43.18	28.26			
	1805	+ 14 7	S		15 48.78	-1.59	47.19	N		32 17.36	-1.80	15.56	28.37			
	1811	+ 18 39	S		19 13.46	-1.46	12.00	S		35 42.26	-1.94	40.32	28.32			
	1824	+ 39 30	N		20 61.14	-1.44	59.70	S		37 30.01	-1.96	28.05	28.35			
Dec. 2	1830	+ 39 8	N		22 60.77	-1.48	59.29	S		39 29.48	-1.92	27.56	28.27			
	1845	+ 39 7	N		25 25.09	-1.68	23.41	N		41 53.51	-1.70	51.81	28.40			
					25 45.54	-1.68	43.86	N		42 13.97	-1.71	12.26	28.40			
					28 4.36	-1.68	2.68	N		44 32.73	-1.71	31.02	28.34			

NOTE.  $1^s = 0^s.0225$  Transcribing Equation  $\pi$ il, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .023 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .001	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 12	1620	+ 22 9	S	<i>I. P. W.</i>	5 9 27.97	-0.65	27.32	S	<i>I. P. W.</i>	5 10 13.98	-1.75	12.23	+0 44.91				
	1629	+ 33 38	N	<i>d</i>	11 39.12	-0.66	38.46	N	<i>d</i>	12 25.26	-1.85	23.41	44.95				
	1632	+ 33 37	N	<i>c</i> + 0.4 <i>b</i> + 5.5 <i>a</i> + 5.8	12 20.29	-0.66	19.63	N	<i>c</i> + 0.8 <i>b</i> - 2.5 <i>a</i> + 16.4	13 6.39	-1.85	4.54	44.91				
	1648	+ 27 50	N	<i>s</i>	14 40.76	-0.65	40.11	N	<i>s</i>	15 26.75	-1.79	24.96	44.85				
	1663	+ 37 16	N	<i>Q</i> - 0.80	17 44.15	-0.67	43.48	N	<i>Q</i> - 1.72	18 30.42	-1.88	28.54	45.06				
	1681	+ 28 30	N		19 55.75	-0.65	55.10	N		20 41.98	-1.80	40.18	45.08				
	1701	+ 15 46	S		22 4.37	-0.63	3.74	S		22 50.40	-1.71	48.69	44.95				
	1711	+ 20 27	S		24 19.89	-0.64	19.25	S		25 5.92	-1.74	4.18	44.93				
				Mean, T <sub>R</sub>	5 16 32												
Dec. 13	1528	+ 24 52	$\left\{ \begin{matrix} S \\ N \end{matrix} \right.$	<i>I. P. W.</i>	4 51 49.53	+0.93	50.46	S	<i>I. P. W.</i>	4 52 36.90	+1.70	38.60	+0 48.14				
				<i>d</i>	51 49.45	+0.93	50.38	N	<i>d</i>	52 36.79	+1.70	38.49	48.11				
	1551	+ 21 25	S	<i>c</i> - 1.1 <i>b</i> + 6.3 <i>a</i> + 11.3	56 55.81	+0.93	56.74	S	<i>c</i> - 0.1 <i>b</i> + 1.0 <i>a</i> + 33.5	57 43.18	+1.74	44.92	48.18				
	1562	+ 26 16	N	<i>s</i>	59 28.50	+0.92	29.42	N	<i>s</i>	5 0 15.98	+1.68	17.66	48.24				
	1577	+ 28 7	N	<i>Q</i> + 0.79	5 2 3.99	+0.91	4.90	N	<i>Q</i> + 1.70	2 51.55	+1.66	53.21	48.31				
	1591	+ 15 27	S		3 49.78	+0.95	50.73	S		4 37.18	+1.82	39.00	48.27				
				Mean, T <sub>R</sub>	4 57 40												
Dec. 13	1620	+ 22 9	S	<i>I. P. W.</i>	5 9 16.81	-0.65	16.16	S	<i>I. P. W.</i>	5 10 6.10	-1.67	4.43	+0 48.27				
	1629	+ 33 38	N	<i>d</i>	11 27.98	-0.69	27.29	N	<i>d</i>	12 17.50	-1.83	15.67	48.38				
	1632	+ 33 37	N	<i>c</i> - 1.1 <i>b</i> + 6.3 <i>a</i> + 11.3	12 9.06	-0.69	8.37	N	<i>c</i> - 0.1 <i>b</i> + 1.0 <i>a</i> + 33.5	12 58.64	-1.83	56.81	48.44				
	1648	+ 27 50	N	<i>s</i>	14 29.62	-0.67	28.95	N	<i>s</i>	15 18.97	-1.74	17.23	48.28				
	1663	+ 37 16	N	<i>Q</i> - 0.79	17 33.10	-0.70	32.40	N	<i>Q</i> - 1.70	18 22.64	-1.90	20.74	48.34				
	1681	+ 28 30	N		19 44.75	-0.67	44.08	N		20 34.15	-1.75	32.40	48.32				
	1701	+ 15 46	S		21 53.28	-0.63	53.65	S		22 42.55	-1.58	40.97	48.32				
	1711	+ 20 27	S		24 8.69	-0.64	8.05	S		24 58.10	-1.64	56.46	48.41				
				Mean, T <sub>M</sub>	5 16 20												

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\#1$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ ; AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^h 19^m 58^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Peral. Equations $H_N - H_S = + 0^{\circ}.023$ $S_N - S_S = - 0^{\circ}.001$	$M_N$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 14	1528	+ 24 52	S	<i>I. P. W.</i>	4 51 38.39	+ 0.73	39.12	S	<i>I. P. W.</i>	4 52 28.61	+ 1.68	30.29	+ 0 51.17				
			N	<i>d</i>	51 38.36	+ 0.73	39.09	N	<i>d</i>	52 28.60	+ 1.68	30.28	51.19				
	1534	+ 39 13	N	<i>c - 1.5</i> <i>b - 2.0</i> <i>a + 14.2</i>	52 54.41	+ 0.62	55.03	N	<i>c + 0.7</i> <i>b + 0.6</i> <i>a + 43.0</i>	53 44.93	+ 1.38	46.31	51.28				
	1535	+ 39 28	N	<i>s</i>	52 58.01	+ 0.62	58.63	N	<i>s</i>	53 48.60	+ 1.37	49.97	51.34				
	1541	+ 40 54	N	<i>Q + 0.81</i>	54 56.60	+ 0.60	57.20	N	<i>Q + 1.68</i>	55 47.20	+ 1.33	48.53	51.33				
	1551	+ 21 25	S		56 44.67	+ 0.75	45.42	S		57 34.89	+ 1.74	36.63	51.21				
	1562	+ 26 16	N		59 17.39	+ 0.72	18.11	N		5 0 7.72	+ 1.66	9.38	51.27				
	1577	+ 28 7	N		5 1 52.89	+ 0.71	53.60	N		2 43.23	+ 1.63	44.86	51.26				
1591	+ 15 27	S		3 38.67	+ 0.80	39.47	S		4 28.82	+ 1.84	30.66	51.19					
			Mean, $T_E$	4 56 11													
Dec. 14	1620	+ 22 9	S	<i>I. P. W.</i>	5 9 5.75	- 0.87	4.88	S	<i>I. P. W.</i>	5 9 57.77	- 1.63	56.14	+ 0 51.26				
	1629	+ 33 38	N	<i>d</i>	11 16.97	- 0.95	16.02	N	<i>d</i>	12 9.28	- 1.85	7.43	51.41				
	1632	+ 33 37	N	<i>c - 1.5</i> <i>b - 2.0</i> <i>a + 14.2</i>	11 58.13	- 0.95	57.18	N	<i>c + 0.7</i> <i>b + 0.6</i> <i>a + 43.0</i>	12 50.41	- 1.85	48.56	51.38				
	1648	+ 27 50	N	<i>s</i>	14 18.56	- 0.91	17.65	N	<i>s</i>	15 10.79	- 1.73	9.06	51.41				
	1663	+ 37 16	N	<i>Q - 0.81</i>	17 22.03	- 0.98	21.05	N	<i>Q - 1.68</i>	18 14.45	- 1.94	12.51	51.46				
	1681	+ 28 30	N		19 33.65	- 0.91	32.74	N		20 25.85	- 1.74	24.11	51.37				
	1701	+ 15 46	S		21 42.16	- 0.83	41.33	S		22 34.22	- 1.52	32.70	51.37				
	1711	+ 20 27	S		23 57.59	- 0.86	56.73	S		24 49.76	- 1.60	48.16	51.43				
			Mean, $T_E$	5 16 9													
Dec. 16	1528	+ 24 52	S	<i>I. P. E.</i>	4 51 14.71	+ 1.24	15.95	S	<i>I. P. E.</i>	4 52 11.85	+ 0.87	12.72	+ 0 56.77				
	1534	+ 39 13	N	<i>d</i>	52 30.64	+ 1.27	31.91	N	<i>d</i>	53 28.31	+ 0.49	28.80	56.89				
	1541	+ 40 54	N	<i>c - 0.5</i> <i>b + 1.6</i> <i>a - 3.3</i>	54 32.84	+ 1.26	34.10	N	<i>c - 22.6</i> <i>b - 8.9</i> <i>a + 34.9</i>	55 30.49	+ 0.44	30.93	56.83				
	1551	+ 21 25	S	<i>s</i>	56 21.13	+ 1.23	22.36	S	<i>s</i>	57 18.08	+ 0.95	19.03	56.67				
	1562	+ 26 16	N	<i>Q + 1.21</i>	58 53.82	+ 1.24	55.06	N	<i>Q + 1.68</i>	59 50.97	+ 0.84	51.81	56.75				
	1577	+ 28 7	N		5 1 29.38	+ 1.24	30.62	N		5 2 26.51	+ 0.78	27.29	56.67				
	1591	+ 15 27	S		3 15.19	+ 1.22	16.41	S		4 12.03	+ 1.06	13.09	56.68				
				Mean, $T_E$	4 56 54												

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation  $\#12$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 68° 28' 42": AND JUBBULPORE (W) Lat. 23° 10', Long. 68° 19' 58".																		
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0.023$ $S_N - S_S = - 0.001$	$M_N$	
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group				
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>					
Dec. 16	1620	+ 22 9	S	<i>I. P. E.</i>	5 8 43.06	-1.19	41.87	S	<i>I. P. E.</i>	5 9 41.02	-2.43	38.59	+ 0 56.72					
	1629	+ 33 38	N	<i>c - 0.5</i> <i>d</i>	10 54.23	-1.17	53.06	N	<i>c - 22.6</i> <i>d</i>	11 52.46	-2.70	49.76	56.70					
	1632	+ 33 37	N	<i>b + 1.6</i> <i>a - 3.3</i>	11 35.38	-1.17	34.21	N	<i>b - 8.9</i> <i>a + 34.9</i>	12 33.70	-2.70	31.00	56.79					
	1648	+ 27 50	N	<i>s</i>	13 55.83	-1.18	54.65	N	<i>s</i>	14 53.92	-2.55	51.37	56.72					
	1663	+ 37 16	N	<i>Q - 1.21</i>	16 59.24	-1.16	58.08	N	<i>Q - 1.68</i>	17 57.69	-2.79	54.90	56.82					
	1681	+ 28 30	N		19 10.91	-1.18	9.73	N		20 9.10	-2.58	6.52	56.79					
	1701	+ 15 46	S		21 19.54	-1.19	18.35	S		22 17.42	-2.31	15.11	56.76					
	1711	+ 20 27	S		23 34.99	-1.19	33.80	S		24 32.94	-2.39	30.55	56.75					
				Mean, $T_E$	5 15 47													
Dec. 19	1628	+ 24 52	S	<i>I. P. E.</i>	4 50 44.38	+1.09	45.47	S	<i>I. P. E.</i>	4 51 45.28	+0.89	46.17	+ 1 0.70					
	1534	+ 39 13	N	<i>c - 1.6</i> <i>d</i>	52 0.22	+1.14	1.36	N	<i>c - 23.1</i> <i>d</i>	53 1.55	+0.53	2.08	0.72					
	1541	+ 40 54	N	<i>b - 2.6</i> <i>a - 9.3</i>	54 2.31	+1.14	3.45	N	<i>b - 7.2</i> <i>a + 33.7</i>	55 3.83	+0.48	4.31	0.86					
	1551	+ 21 25	S	<i>s</i>	55 50.61	+1.08	51.69	S	<i>s</i>	56 51.45	+0.97	52.42	0.73					
	1562	+ 26 16	N	<i>Q + 1.20</i>	58 23.25	+1.09	24.34	N	<i>Q + 1.67</i>	59 24.32	+0.86	25.18	0.84					
	1577	+ 28 7	N		5 0 58.79	+1.10	59.89	N		5 1 59.85	+0.82	60.67	0.78					
	1591	+ 15 27	S		2 44.58	+1.06	45.64	S		3 45.35	+1.07	46.42	0.78					
				Mean, $T_E$	4 56 23													
Dec. 19	1620	+ 22 9	S	<i>I. P. E.</i>	5 8 12.44	-1.32	11.12	S	<i>I. P. E.</i>	5 9 14.45	-2.38	12.07	+ 1 0.95					
	1629	+ 33 38	N	<i>c - 1.6</i> <i>d</i>	10 23.60	-1.28	22.32	N	<i>c - 23.1</i> <i>d</i>	11 25.93	-2.65	23.28	0.96					
	1632	+ 33 37	N	<i>b - 2.6</i> <i>a - 9.3</i>	11 4.77	-1.28	3.49	N	<i>b - 7.2</i> <i>a + 33.7</i>	12 7.00	-2.65	4.35	0.86					
	1648	+ 27 50	N	<i>s</i>	13 25.30	-1.31	23.99	N	<i>s</i>	14 27.31	-2.50	24.81	0.82					
	1663	+ 37 16	N	<i>Q - 1.20</i>	16 28.57	-1.26	27.31	N	<i>Q - 1.67</i>	17 31.04	-2.75	28.29	0.98					
	1681	+ 28 30	N		18 40.34	-1.30	39.04	N		19 42.44	-2.53	39.91	0.87					
	1701	+ 15 46	S		20 48.96	-1.34	47.62	S		21 50.76	-2.27	48.49	0.87					
	1711	+ 20 27	S		23 4.40	-1.32	3.08	S		24 6.32	-2.35	3.97	0.89					
				Mean, $T_E$	5 15 16													

NOTE.  $1^d = 0.0225$ . Transcribing Equation #1, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 6 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .023 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .001	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 20	1528	+ 24 52	S	<i>I. P. E.</i>	4 50 34 <sup>s</sup> .78	+ 1 <sup>s</sup> .15	35 <sup>s</sup> .93	S	<i>I. P. E.</i>	4 51 36 <sup>s</sup> .14	+ 0 <sup>s</sup> .77	36 <sup>s</sup> .91	+ 1 0 <sup>s</sup> .98				
	1534	+ 39 13	N	<i>c - 0<sup>s</sup>.7</i> <i>d</i>	51 50 <sup>s</sup> .67	+ 1 <sup>s</sup> .22	51 <sup>s</sup> .89	N	<i>c - 23<sup>s</sup>.2</i> <i>d</i>	52 52 <sup>s</sup> .50	+ 0 <sup>s</sup> .40	52 <sup>s</sup> .90	1 <sup>s</sup> .01				
	1541	+ 40 54	N	<i>b - 0<sup>s</sup>.7</i> <i>a - 10<sup>s</sup>.1</i>	53 52 <sup>s</sup> .83	+ 1 <sup>s</sup> .23	54 <sup>s</sup> .06	N	<i>b - 9<sup>s</sup>.6</i> <i>a + 33<sup>s</sup>.3</i>	54 54 <sup>s</sup> .72	+ 0 <sup>s</sup> .34	55 <sup>s</sup> .06	1 <sup>s</sup> .00				
	1551	+ 21 25	S	<i>s</i> <i>Q + 1<sup>s</sup>.20</i>	55 41 <sup>s</sup> .13	+ 1 <sup>s</sup> .14	42 <sup>s</sup> .27	S	<i>s</i> <i>Q + 1<sup>s</sup>.61</i>	56 42 <sup>s</sup> .35	+ 0 <sup>s</sup> .84	43 <sup>s</sup> .19	0 <sup>s</sup> .92				
	1562	+ 26 16	N		58 13 <sup>s</sup> .80	+ 1 <sup>s</sup> .16	14 <sup>s</sup> .96	N		59 15 <sup>s</sup> .25	+ 0 <sup>s</sup> .74	15 <sup>s</sup> .99	1 <sup>s</sup> .03				
	1577	+ 28 7	N		5 0 49 <sup>s</sup> .30	+ 1 <sup>s</sup> .17	50 <sup>s</sup> .47	N		5 1 50 <sup>s</sup> .79	+ 0 <sup>s</sup> .70	51 <sup>s</sup> .49	1 <sup>s</sup> .02				
	1591	+ 15 27	S		2 35 <sup>s</sup> .16	+ 1 <sup>s</sup> .11	36 <sup>s</sup> .27	S		3 36 <sup>s</sup> .28	+ 0 <sup>s</sup> .96	37 <sup>s</sup> .24	0 <sup>s</sup> .97				
				Mean, T <sub>E</sub>	4 56 14												
Dec. 20	1620	+ 22 9	S	<i>I. P. E.</i>	5 8 3 <sup>s</sup> .03	- 1 <sup>s</sup> .26	1 <sup>s</sup> .77	S	<i>I. P. E.</i>	5 9 5 <sup>s</sup> .20	- 2 <sup>s</sup> .39	2 <sup>s</sup> .81	+ 1 1 <sup>s</sup> .04				
	1629	+ 33 38	N	<i>c - 0<sup>s</sup>.7</i> <i>d</i>	10 14 <sup>s</sup> .10	- 1 <sup>s</sup> .21	12 <sup>s</sup> .89	N	<i>c - 23<sup>s</sup>.2</i> <i>d</i>	11 16 <sup>s</sup> .67	- 2 <sup>s</sup> .65	14 <sup>s</sup> .02	1 <sup>s</sup> .13				
	1632	+ 33 37	N	<i>b - 0<sup>s</sup>.7</i> <i>a - 10<sup>s</sup>.1</i>	10 55 <sup>s</sup> .30	- 1 <sup>s</sup> .21	54 <sup>s</sup> .09	N	<i>b - 9<sup>s</sup>.6</i> <i>a + 33<sup>s</sup>.3</i>	11 57 <sup>s</sup> .80	- 2 <sup>s</sup> .65	55 <sup>s</sup> .15	1 <sup>s</sup> .06				
	1648	+ 27 50	N	<i>s</i> <i>Q - 1<sup>s</sup>.20</i>	13 15 <sup>s</sup> .73	- 1 <sup>s</sup> .23	14 <sup>s</sup> .50	N	<i>s</i> <i>Q - 1<sup>s</sup>.61</i>	14 18 <sup>s</sup> .10	- 2 <sup>s</sup> .51	15 <sup>s</sup> .59	1 <sup>s</sup> .09				
	1663	+ 37 16	N		16 19 <sup>s</sup> .27	- 1 <sup>s</sup> .19	18 <sup>s</sup> .08	N		17 21 <sup>s</sup> .85	- 2 <sup>s</sup> .75	19 <sup>s</sup> .10	1 <sup>s</sup> .02				
	1681	+ 28 30	N		18 30 <sup>s</sup> .93	- 1 <sup>s</sup> .23	29 <sup>s</sup> .70	N		19 33 <sup>s</sup> .21	- 2 <sup>s</sup> .54	30 <sup>s</sup> .67	0 <sup>s</sup> .97				
	1701	+ 15 46	S		20 39 <sup>s</sup> .59	- 1 <sup>s</sup> .29	38 <sup>s</sup> .30	S		21 41 <sup>s</sup> .52	- 2 <sup>s</sup> .26	39 <sup>s</sup> .26	0 <sup>s</sup> .96				
	1711	+ 20 27	S		22 54 <sup>s</sup> .98	- 1 <sup>s</sup> .27	53 <sup>s</sup> .71	S		23 57 <sup>s</sup> .09	- 2 <sup>s</sup> .36	54 <sup>s</sup> .73	1 <sup>s</sup> .02				
				Mean, T <sub>E</sub>	5 15 7												

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> .023 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>h</sup> .001	δI <sub>N</sub> - ρ
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec.12	1289	+22 7	S	<i>I. P. W.</i>	4 6 56.17	+0.95	57.12	S	<i>I. P. W.</i>	4 15 39.98	+1.69	41.67	8 44.55				
	1302	+15 6	S	<i>d</i> c + 0.4	10 8.87	+0.97	9.84	S	<i>d</i> c + 0.8	18 52.62	+1.73	54.35	44.51				
	1326	+27 4	N	b + 5.5 a + 5.8 <i>s</i> Q + 0.80	14 10.56	+0.95	11.51	N	b - 2.5 a + 16.4 <i>s</i> Q + 1.72	22 54.37	+1.65	56.02	44.51	<i>m s</i> 8 44.523	+ 0.067	-	8 44.574
Dec.12	1364	+31 10	N	<i>I. P. W.</i>	4 19 42.14	-0.66	41.48	N	<i>I. P. W.</i>	4 28 27.69	-1.83	25.86	8 44.38				
	1371	+22 44	S	<i>d</i> c + 0.4	21 20.29	-0.65	19.64	S	<i>d</i> c + 0.8	30 5.83	-1.76	4.07	44.43				
	1380	+15 42	S	b + 5.5 a + 5.8 <i>s</i> Q - 0.80	22 56.18	-0.63	55.55	S	b - 2.5 a + 16.4 <i>s</i> Q - 1.72	31 41.52	-1.71	39.81	44.26				
	1381	+15 37	S		23 1.62	-0.63	0.99	S		31 47.05	-1.71	45.34	44.35				
	1397	+42 47	N		26 10.28	-0.68	9.60	N		34 56.03	-1.94	54.09	44.49	<i>m s</i> 8 44.401	+ 0.067	-	8 44.456
	1398	+42 49	N		26 13.66	-0.68	12.98	N		34 59.33	-1.94	57.39	44.41				
	1408	+28 43	N		28 21.33	-0.66	20.67	N		37 6.93	-1.80	5.13	44.46				
	1417	+19 38	S		29 53.65	-0.64	53.01	S		38 39.18	-1.74	37.44	44.43				
Dec.13	1269	+37 44	N	<i>I. P. W.</i>	4 1 38.73	+0.88	39.61	N	<i>I. P. W.</i>	4 10 22.91	+1.49	24.40	8 44.79				
	1279	+26 10	N	<i>d</i> c - 1.1	4 32.38	+0.92	33.30	N	<i>d</i> c - 0.1	13 16.30	+1.69	17.99	44.69				
	1289	+22 7	S	b + 6.3 a + 11.3 <i>s</i> Q + 0.79	6 45.01	+0.93	45.94	S	b + 1.0 a + 33.5 <i>s</i> Q + 1.70	15 28.88	+1.73	30.61	44.67	<i>m s</i> 8 44.702	+ 0.068	-	8 44.754
	1302	+15 6	S		9 57.77	+0.95	58.72	S		18 41.57	+1.82	43.39	44.67				
	1326	+27 4	N		13 59.46	+0.92	60.38	N		22 43.40	+1.67	45.07	44.69				

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^{\text{h}} 28^{\text{m}} 42^{\text{s}}$ ; AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^{\text{h}} 19^{\text{m}} 58^{\text{s}}$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\text{s}}.023$ $S_N - S_S = - 0^{\text{s}}.001$	$\delta L_N - \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 13	1364	+31 10	N	<i>I. P. W.</i>	4 19 30.92	-0.67	30.25	N	<i>I. P. W.</i>	4 28 16.82	-1.79	15.03	8 44.78				
	1371	+22 44	S	<i>c - 1.1</i> <i>d</i>	21 9.12	-0.65	8.47	S	<i>c - 0.1</i> <i>d</i>	29 54.85	-1.67	53.18	44.71				
	1380	+15 42	S	<i>b + 6.3</i> <i>a + 11.3</i>	22 45.00	-0.63	44.37	S	<i>b + 1.0</i> <i>a + 33.5</i>	31 30.57	-1.58	28.99	44.62				
	1381	+15 37	S	<i>s</i>	22 50.46	-0.63	49.83	S	<i>s</i>	31 36.08	-1.58	34.50	44.67				
	1397	+42 47	N	<i>Q - 0.79</i>	25 59.13	-0.72	58.41	N	<i>Q - 1.70</i>	34 45.22	-2.02	43.20	44.79	<i>m s</i> 8 44.705	+ 0.068		
	1398	+42 49	N		26 2.53	-0.72	1.81	N		34 48.57	-2.02	46.55	44.74				
	1408	+28 43	N		28 10.17	-0.67	9.50	N		36 55.97	-1.75	54.22	44.72				
	1417	+19 38	S		29 42.51	-0.64	41.87	S		38 28.11	-1.63	26.48	44.61				
Dec. 14	1244	+9 40	S	<i>I. P. W.</i>	3 56 2.14	+0.84	2.98	S	<i>I. P. W.</i>	4 4 45.64	+1.94	47.58	8 44.60				
	1257	+21 46	S	<i>c - 1.5</i> <i>d</i>	58 25.68	+0.75	26.43	S	<i>c + 0.7</i> <i>d</i>	7 9.33	+1.74	11.07	44.64				
	1260	+21 41	S	<i>b - 2.0</i> <i>a + 14.2</i>	59 3.63	+0.75	4.38	S	<i>b + 0.6</i> <i>a + 43.0</i>	7 47.31	+1.74	49.05	44.67				
	1269	+37 44	N	<i>s</i>	4 1 27.86	+0.63	28.49	N	<i>s</i>	10 11.69	+1.42	13.11	44.62				
	1279	+26 10	N	<i>Q + 0.81</i>	4 21.31	+0.72	22.03	N	<i>Q + 1.68</i>	13 5.04	+1.66	6.70	44.67	<i>m s</i> 8 44.650	+ 0.070		
	1289	+22 7	S		6 33.91	+0.75	34.66	S		15 17.61	+1.72	19.33	44.67				
	1302	+15 6	S		9 46.64	+0.80	47.44	S		18 30.28	+1.84	32.12	44.68				
	1326	+27 4	N		13 48.41	+0.72	49.13	N		22 32.13	+1.65	33.78	44.65				
Dec. 14	1364	+31 10	N	<i>I. P. W.</i>	4 19 19.93	-0.93	19.00	N	<i>I. P. W.</i>	4 28 5.44	-1.79	3.65	8 44.65				
	1371	+22 44	S	<i>c - 1.5</i> <i>d</i>	20 58.06	-0.87	57.19	S	<i>c + 0.7</i> <i>d</i>	29 43.49	-1.64	41.85	44.66				
	1380	+15 42	S	<i>b - 2.0</i> <i>a + 14.2</i>	22 33.84	-0.83	33.01	S	<i>b + 0.6</i> <i>a + 43.0</i>	31 19.12	-1.52	17.60	44.59				
	1381	+15 37	S	<i>s</i>	22 39.31	-0.82	38.49	S	<i>s</i>	31 24.65	-1.52	23.13	44.64				
	1397	+42 47	N	<i>Q - 0.81</i>	25 48.18	-1.04	47.14	N	<i>Q - 1.68</i>	34 33.93	-2.08	31.85	44.71	<i>m s</i> 8 44.663	+ 0.070		
	1398	+42 49	N		25 51.49	-1.04	50.45	N		34 37.27	-2.08	35.19	44.74				
	1408	+28 43	N		27 59.14	-0.91	58.23	N		36 44.63	-1.74	42.89	44.66				
	1417	+19 38	S		29 31.39	-0.86	30.53	S		38 16.77	-1.59	15.18	44.65				

NOTE.  $1^{\text{s}} = 0^{\text{s}}.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 28° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviride, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^{\circ}.023$ $S_N - S_S = - 0^{\circ}.001$	$\delta L_N - \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 16	1244	+ 9 40	S	<i>I. P. E.</i>	3 55 38.69	+ 1.22	39.91	S	<i>I. P. E.</i>	4 4 22.98	+ 1.15	24.13	8 44.22				
	1257	+ 21 46	S	<i>d</i>	58 2.06	+ 1.23	3.29	S	<i>d</i>	6 46.65	+ 0.94	47.59	44.30				
	1260	+ 21 41	S	<i>c - 0.5</i> <i>b + 1.6</i> <i>a - 3.3</i>	58 40.04	+ 1.23	41.27	S	<i>c - 22.6</i> <i>b - 8.9</i> <i>a + 34.9</i>	7 24.65	+ 0.94	25.59	44.32				
	1269	+ 37 44	N	<i>s</i>	4 1 4.14	+ 1.26	5.40	N	<i>s</i>	9 49.12	+ 0.55	49.67	44.27				
	1279	+ 26 10	N	<i>Q + 1.21</i>	3 57.71	+ 1.24	58.95	N	<i>Q + 1.68</i>	12 42.39	+ 0.84	43.23	44.28				
	1302	+ 15 6	S		9 23.07	+ 1.22	24.29	S		18 7.67	+ 1.06	8.73	44.44				
	1326	+ 27 4	N		13 24.75	+ 1.24	25.99	N		22 9.60	+ 0.83	10.43	44.44				
Dec. 16	1864	+ 31 10	N	<i>I. P. E.</i>	4 18 57.05	- 1.17	55.88	N	<i>I. P. E.</i>	4 27 42.94	- 2.63	40.31	8 44.43				
	1371	+ 22 44	S	<i>d</i>	20 35.37	- 1.19	34.18	S	<i>d</i>	29 20.91	- 2.43	18.48	44.30				
	1380	+ 15 42	S	<i>c - 0.5</i> <i>b + 1.6</i> <i>a - 3.3</i>	22 11.18	- 1.19	9.99	S	<i>c - 22.6</i> <i>b - 8.9</i> <i>a + 34.9</i>	30 56.63	- 2.30	54.33	44.34				
	1381	+ 15 37	S	<i>s</i>	22 16.68	- 1.20	15.48	S	<i>s</i>	30 62.11	- 2.30	59.81	44.33				
	1397	+ 42 47	N	<i>Q - 1.21</i>	25 25.25	- 1.15	24.10	N	<i>Q - 1.68</i>	34 11.54	- 3.00	8.54	44.44				
	1398	+ 42 49	N		25 28.52	- 1.15	27.37	N		34 14.85	- 3.00	11.85	44.48				
	1408	+ 28 43	N		27 36.38	- 1.18	35.20	N		36 22.12	- 2.58	19.54	44.34				
	1417	+ 19 38	S		29 8.77	- 1.19	7.58	S		37 54.23	- 2.38	51.85	44.27				
Dec. 19	1257	+ 21 46	S	<i>I. P. E.</i>	3 57 31.43	+ 1.08	32.51	S	<i>I. P. E.</i>	4 6 16.04	+ 0.97	17.01	8 44.50				
	1260	+ 21 41	S	<i>d</i>	58 9.39	+ 1.08	10.47	S	<i>d</i>	6 53.97	+ 0.97	54.94	44.47				
	1269	+ 37 44	N	<i>c - 1.6</i> <i>b - 2.6</i> <i>a - 9.3</i>	4 0 33.40	+ 1.14	34.54	N	<i>c - 23.1</i> <i>b - 7.2</i> <i>a + 33.7</i>	9 18.48	+ 0.58	19.06	44.52				
	1279	+ 26 10	N	<i>s</i>	3 27.08	+ 1.09	28.17	N	<i>s</i>	12 11.77	+ 0.87	12.64	44.47				
	1289	+ 22 7	S	<i>Q + 1.20</i>	5 39.69	+ 1.08	40.77	S	<i>Q + 1.67</i>	14 24.41	+ 0.96	25.37	44.60				
	1302	+ 15 6	S		8 52.49	+ 1.06	53.55	S		17 36.92	+ 1.07	37.99	44.44				
	1326	+ 27 4	N		12 54.14	+ 1.09	55.23	N		21 38.92	+ 0.85	39.77	44.54				

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\frac{1}{2}d$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

**TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION**

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 54° 28' 42": AND JUBBULPORE (W) Lat. 23° 10', Long. 54° 19' 58".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0.023 S <sub>N</sub> - S <sub>S</sub> = - 0.001 3I <sub>N</sub> - P	
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		o			h m s	s	s			h m s	s	s	m s				
Dec. 19	1364	+ 31 10	N	I. P. E.	4 18 26.40	- 1.29	25.11	N	I. P. E.	4 27 12.29	- 2.58	9.71	8 44.60				
	1371	+ 22 44	S	d	20 4.73	- 1.32	3.41	S	d	28 50.29	- 2.39	47.90	44.49				
	1380	+ 15 42	S	o - 1.6 b - 2.6 a - 9.3	21 40.51	- 1.34	39.17	S	c - 23.1 b - 7.2 a + 33.7	30 25.88	- 2.27	23.61	44.44				
	1381	+ 15 37	S	s	21 46.05	- 1.34	44.71	S	s	30 31.44	- 2.27	29.17	44.46				
	1397	+ 42 47	N	Q - 1.20	24 54.57	- 1.25	53.32	N	Q - 1.67	33 40.85	- 2.95	37.90	44.58	8 44.523			
	1398	+ 42 49	N		24 57.94	- 1.25	56.69	N		33 44.15	- 2.95	41.20	44.51				
	1408	+ 28 43	N		27 5.69	- 1.30	4.39	N		35 51.48	- 2.53	48.95	44.56				
	1417	+ 19 38	S		28 38.04	- 1.33	36.71	S		37 23.59	- 2.34	21.25	44.54				
Dec. 20	1244	+ 9 40	S	I. P. E.	3 54 58.57	+ 1.09	59.66	S	I. P. E.	4 3 42.96	+ 1.05	44.01	8 44.35				
	1257	+ 21 46	S	d	57 21.95	+ 1.14	23.09	S	d	6 6.65	+ 0.84	7.49	44.40				
	1260	+ 21 41	S	o - 0.7 b - 0.7 a - 10.1	57 59.96	+ 1.14	61.10	S	c - 23.2 b - 9.6 a + 33.3	6 44.64	+ 0.84	45.48	44.38				
	1269	+ 37 44	N	s	4 0 23.95	+ 1.21	25.16	N	s	9 9.11	+ 0.46	9.57	44.41	8 44.370			
	1279	+ 26 10	N	Q + 1.20	3 17.61	+ 1.16	18.77	N	Q + 1.61	12 2.38	+ 0.75	3.13	44.36				
	1289	+ 22 7	S		5 30.28	+ 1.14	31.42	S		14 14.91	+ 0.83	15.74	44.32				
Dec. 20	1408	+ 28 43	N	I. P. E.	4 26 56.32	- 1.23	55.09	N	I. P. E.	4 35 41.89	- 2.53	39.36	8 44.27				
	1417	+ 19 38	S	d	28 28.72	- 1.27	27.45	S	d	37 14.06	- 2.35	11.71	44.26	8 44.265			
			o - 0.7 b - 0.7 a - 10.1					o - 23.2 b - 9.6 a + 33.3									
			s					s									
			Q - 1.20					Q - 1.61									

**NOTE. 1<sup>d</sup> = 0.0225.** Transcribing Equation 44, all records having been transcribed by the same person.

\*  $\rho$  is the retardation of an electric signal between the stations.



## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ : AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescopes No. 1				TRANSITS OBSERVED AT W By Strahan, with Telescopes No. 2				Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^{\circ}.023$ $S_N - S_S = - 0^{\circ}.001$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	By each Star	Mean of Group	
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Dec. 12	1896	+ 25 56	N	<i>I. P. W.</i>	5 43 44.82	+ 0.95	45.77	N	<i>I. P. W.</i>	5 52 28.63	+ 1.66	30.29	8 44.52		
	1907	+ 12 48	S	$\begin{matrix} d \\ c + 0.4 \\ b + 5.5 \\ a + 5.8 \end{matrix}$	45 19.13	+ 0.96	20.09	S	$\begin{matrix} d \\ c + 0.8 \\ b - 2.5 \\ a + 16.4 \end{matrix}$	54 2.80	+ 1.75	4.55	44.46		
	1925	+ 22 24	S	$\begin{matrix} s \\ a + 5.8 \end{matrix}$	47 38.50	+ 0.95	39.45	S	$\begin{matrix} s \\ a + 16.4 \end{matrix}$	56 22.31	+ 1.68	23.99	44.54		
	1935	+ 37 58	N	$\begin{matrix} s \\ Q + 0.80 \end{matrix}$	50 1.72	+ 0.93	2.65	N	$\begin{matrix} s \\ Q + 1.72 \end{matrix}$	58 45.71	+ 1.55	47.26	44.61		
	1942	+ 38 30	N		51 31.76	+ 0.94	32.70	N		6 0 15.72	+ 1.55	17.27	44.57		
	1947	+ 38 6	N		52 30.05	+ 0.93	30.98	N		1 14.04	+ 1.55	15.59	44.61		
	1958	+ 14 47	S		53 54.30	+ 0.96	55.26	S		2 37.97	+ 1.74	39.71	44.45		
	1971	+ 23 8	S		55 38.36	+ 0.95	39.31	S		4 22.15	+ 1.68	23.83	44.52		
	1975	+ 23 2	S		56 24.71	+ 0.95	25.66	S		5 8.51	+ 1.68	10.19	44.53		
Dec. 12	2047	+ 22 34	S	<i>I. P. W.</i>	6 8 55.07	- 0.65	54.42	S	<i>I. P. W.</i>	6 17 40.72	- 1.76	38.96	8 44.54		
	2063	+ 23 31	S	$\begin{matrix} d \\ c + 0.4 \\ b + 5.5 \\ a + 5.8 \end{matrix}$	11 27.61	- 0.65	26.96	S	$\begin{matrix} d \\ c + 0.8 \\ b - 2.5 \\ a + 16.4 \end{matrix}$	20 13.18	- 1.76	11.42	44.46		
	2064	+ 23 24	S	$\begin{matrix} s \\ a + 5.8 \end{matrix}$	11 28.38	- 0.65	27.73	S	$\begin{matrix} s \\ a + 16.4 \end{matrix}$	20 13.99	- 1.76	12.23	44.50		
	2082	+ 30 34	N	$\begin{matrix} s \\ Q - 0.80 \end{matrix}$	14 4.96	- 0.66	4.30	N	$\begin{matrix} s \\ Q - 1.72 \end{matrix}$	22 50.60	- 1.81	48.79	44.49		
	2097	+ 28 17	N		16 1.14	- 0.65	0.49	N		24 46.72	- 1.80	44.92	44.43		
	2110	+ 32 32	N		17 51.14	- 0.66	50.48	N		26 36.80	- 1.84	34.96	44.48		
	2129	+ 14 15	S		19 59.69	- 0.64	59.05	S		28 45.22	- 1.70	43.52	44.47		
	2139	+ 38 33	N		21 32.18	- 0.66	31.52	N		30 17.93	- 1.90	16.03	44.51		
	2154	+ 24 42	$\begin{matrix} N \\ S \end{matrix}$		23 18.96	- 0.64	18.32	N		32 4.55	- 1.76	2.79	44.47		
					23 18.92	- 0.64	18.28	S		32 4.50	- 1.76	2.74	44.46		
Dec. 13	1896	+ 25 56	N	<i>I. P. W.</i>	5 43 36.79	+ 0.92	37.71	N	<i>I. P. W.</i>	5 52 20.84	+ 1.69	22.53	8 44.82		
	1907	+ 12 48	S	$\begin{matrix} d \\ c - 1.1 \\ b + 6.3 \\ a + 11.3 \end{matrix}$	45 11.03	+ 0.96	11.99	S	$\begin{matrix} d \\ c - 0.1 \\ b + 1.0 \\ a + 33.5 \end{matrix}$	53 54.89	+ 1.86	56.75	44.76		
	1925	+ 22 24	S	$\begin{matrix} s \\ a + 11.3 \end{matrix}$	47 30.40	+ 0.93	31.33	S	$\begin{matrix} s \\ a + 33.5 \end{matrix}$	56 14.41	+ 1.73	16.14	44.81		
	1935	+ 37 58	N	$\begin{matrix} s \\ Q + 0.79 \end{matrix}$	49 53.67	+ 0.88	54.55	N	$\begin{matrix} s \\ Q + 1.70 \end{matrix}$	58 38.03	+ 1.49	39.52	44.97		
	1942	+ 38 30	N		51 23.71	+ 0.87	24.58	N		6 0 8.13	+ 1.48	9.61	45.03		
	1947	+ 38 6	N		52 21.94	+ 0.88	22.82	N		1 6.30	+ 1.48	7.78	44.96		
	1958	+ 14 47	S		53 46.17	+ 0.96	47.13	S		2 30.08	+ 1.83	31.91	44.78		
	1971	+ 23 8	S		55 30.35	+ 0.93	31.28	S		4 14.39	+ 1.72	16.11	44.83		
	1975	+ 23 2	S		56 16.69	+ 0.93	17.62	S		5 0.74	+ 1.72	2.46	44.84		

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl Equations $H_N - H_S = + 0^{\circ}.023$ $S_N - S_S = - 0^{\circ}.001$	$\delta L_N + \rho$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 18	2047	+ 22 34	S	<i>I. P. W.</i>	6 8 46.94	-0.65	46.29	S	<i>I. P. W.</i>	6 17 32.84	-1.67	31.17	8 44.88	<i>m s</i> 8 44.877	+ 0.049	0.012	8 44.914
	2063	+ 23 31	S	<i>c - 1.1</i> <i>d</i>	11 19.47	-0.65	18.82	S	<i>c - 0.1</i> <i>d</i>	20 5.40	-1.68	3.72	44.90				
	2064	+ 23 24	S	<i>b + 6.3</i> <i>a + 11.3</i>	11 20.27	-0.65	19.62	S	<i>b + 1.0</i> <i>a + 33.5</i>	20 6.16	-1.68	4.48	44.86				
	2082	+ 30 34	N	<i>s</i> <i>Q - 0.79</i>	13 56.93	-0.68	56.25	N	<i>s</i> <i>Q - 1.70</i>	22 42.89	-1.78	41.11	44.86				
	2097	+ 28 17	N		15 53.07	-0.67	52.40	N		24 39.01	-1.75	37.26	44.86				
	2110	+ 32 32	N		17 43.04	-0.68	42.36	N		26 29.07	-1.82	27.25	44.89				
	2129	+ 14 15	S		19 51.59	-0.62	50.97	S		28 37.34	-1.56	35.78	44.81				
	2139	+ 38 33	N		21 24.04	-0.71	23.33	N		30 10.24	-1.93	8.31	44.98				
	2154	+ 24 42	N S		23 10.89 23 10.70	-0.65 -0.65	10.24 10.05	N S		31 56.73 31 56.69	-1.70 -1.70	55.03 54.99	44.79 44.94				
Dec. 14	1896	+ 25 56	N	<i>I. P. W.</i>	5 43 28.76	+0.73	29.49	N	<i>I. P. W.</i>	5 52 12.57	+1.67	14.24	8 44.75	<i>m s</i> 8 44.816	+ 0.052	0.013	8 44.855
	1907	+ 12 48	S	<i>c - 1.5</i> <i>d</i>	45 2.95	+0.82	3.77	S	<i>c + 0.7</i> <i>d</i>	53 46.61	+1.89	48.50	44.73				
	1925	+ 22 24	S	<i>b - 2.0</i> <i>a + 14.2</i>	47 22.37	+0.75	23.12	S	<i>b + 0.6</i> <i>a + 43.0</i>	56 6.17	+1.72	7.89	44.77				
	1935	+ 37 58	N	<i>s</i> <i>Q + 0.81</i>	49 45.69	+0.63	46.32	N	<i>s</i> <i>Q + 1.68</i>	58 29.77	+1.41	31.18	44.86				
	1942	+ 38 30	N		51 15.71	+0.63	16.34	N		59 59.86	+1.40	61.26	44.92				
	1947	+ 38 6	N		52 13.99	+0.63	14.62	N		6 0 58.11	+1.40	59.51	44.89				
	1958	+ 14 47	S		53 38.09	+0.80	38.89	S		2 21.80	+1.86	23.66	44.77				
	1971	+ 23 8	S		55 22.26	+0.74	23.00	S		4 6.10	+1.71	7.81	44.81				
	1975	+ 23 2	S		56 8.61	+0.74	9.35	S		4 52.48	+1.71	54.19	44.84				
Dec. 14	2047	+ 22 34	S	<i>I. P. W.</i>	6 8 39.01	-0.87	38.14	S	<i>I. P. W.</i>	6 17 24.53	-1.64	22.89	8 44.75	<i>m s</i> 8 44.810	+ 0.052	0.012	8 44.850
	2063	+ 23 31	S	<i>c - 1.5</i> <i>d</i>	11 11.52	-0.88	10.64	S	<i>c + 0.7</i> <i>d</i>	19 57.10	-1.65	55.45	44.81				
	2064	+ 23 24	S	<i>b - 2.0</i> <i>a + 14.2</i>	11 12.29	-0.88	11.41	S	<i>b + 0.6</i> <i>a + 43.0</i>	19 57.91	-1.65	56.26	44.85				
	2082	+ 30 34	N	<i>s</i> <i>Q - 0.81</i>	13 48.95	-0.92	48.03	N	<i>s</i> <i>Q - 1.68</i>	22 34.62	-1.78	32.84	44.81				
	2097	+ 28 17	N		15 45.08	-0.91	44.17	N		24 30.74	-1.74	29.00	44.83				
	2110	+ 32 32	N		17 35.11	-0.94	34.17	N		26 20.82	-1.82	19.00	44.83				
	2129	+ 14 15	S		19 43.62	-0.82	42.80	S		28 29.06	-1.50	27.56	44.76				
	2139	+ 38 33	N		21 16.23	-0.99	15.24	N		30 2.01	-1.97	0.04	44.80				
	2154	+ 24 42	N S		23 2.92 23 2.83	-0.89 -0.89	2.03 1.94	N S		31 48.52 31 48.47	-1.68 -1.68	46.84 46.79	44.81 44.85				

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.033$ $S_N - S_S = - 0^{\circ}.001$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 16	1896	+ 25 56	N	<i>I. P. E.</i>	5 43 10.94	+ 1.24	12.18	N	<i>I. P. E.</i>	5 51 55.71	+ 0.85	56.56	8 44.38				
	1907	+ 12 48	S	<i>c - 0.5</i> <i>d</i>	44 45.28	+ 1.22	46.50	S	<i>c - 22.6</i> <i>d</i>	53 29.73	+ 1.11	30.84	44.34				
	1925	+ 22 24	S	<i>b + 1.6</i> <i>a - 3.3</i>	47 4.63	+ 1.23	5.86	S	<i>b - 8.9</i> <i>a + 34.9</i>	55 49.35	+ 0.93	50.28	44.42				
	1935	+ 37 58	N	<i>s</i> <i>Q + 1.21</i>	49 27.82	+ 1.26	29.08	N	<i>s</i> <i>Q + 1.68</i>	58 13.00	+ 0.52	13.52	44.44				
	1912	+ 38 30	N		50 57.87	+ 1.27	59.14	N		59 43.06	+ 0.50	43.56	44.42				
	1947	+ 38 6	N		51 56.09	+ 1.27	57.36	N		6 0 41.30	+ 0.51	41.81	44.45				
	1958	+ 14 47	S		53 20.42	+ 1.22	21.64	S		2 4.92	+ 1.07	5.99	44.35				
	1971	+ 23 8	S		55 4.58	+ 1.24	5.82	S		3 49.29	+ 0.92	50.21	44.39				
	1975	+ 23 2	S		55 50.86	+ 1.23	52.09	S		4 35.60	+ 0.92	36.52	44.43				
Dec. 16	2047	+ 22 34	S	<i>I. P. E.</i>	6 8 22.03	- 1.19	20.84	S	<i>I. P. E.</i>	6 17 7.78	- 2.43	5.35	8 44.51				
	2063	+ 23 31	S	<i>c - 0.5</i> <i>d</i>	10 54.53	- 1.18	53.35	S	<i>c - 22.6</i> <i>d</i>	19 40.33	- 2.47	37.86	44.51				
	2064	+ 23 24	S	<i>b + 1.6</i> <i>a - 3.3</i>	10 55.33	- 1.18	54.15	S	<i>b - 8.9</i> <i>a + 34.9</i>	19 41.13	- 2.44	38.69	44.54				
	2082	+ 30 34	N	<i>s</i> <i>Q - 1.21</i>	13 31.95	- 1.17	30.78	N	<i>s</i> <i>Q - 1.68</i>	22 17.87	- 2.62	15.25	44.47				
	2097	+ 28 17	N		15 28.13	- 1.18	26.95	N		24 13.95	- 2.58	11.37	44.42				
	2110	+ 32 32	N		17 18.06	- 1.17	16.89	N		26 4.02	- 2.67	1.35	44.46				
	2120	+ 14 15	S		19 26.72	- 1.20	25.52	S		28 12.25	- 2.28	9.97	44.45				
	2139	+ 38 33	N		20 59.08	- 1.15	57.93	N		29 45.36	- 2.86	42.50	44.57				
	2154	+ 24 42	{ N S		22 45.92	- 1.18	44.74	N		31 31.71	- 2.49	29.22	44.48				
					22 45.88	- 1.18	44.70	S		31 31.68	- 2.49	29.19	44.49				
Dec. 19	1896	+ 25 56	N	<i>I. P. E.</i>	5 42 44.37	+ 1.09	45.46	N	<i>I. P. E.</i>	5 51 29.29	+ 0.87	30.16	8 44.70				
	1907	+ 12 48	S	<i>c - 1.6</i> <i>d</i>	44 18.70	+ 1.05	19.75	S	<i>c - 23.1</i> <i>d</i>	53 3.32	+ 1.12	4.44	44.69				
	1925	+ 22 24	S	<i>b - 2.6</i> <i>a - 9.3</i>	46 38.08	+ 1.08	39.16	S	<i>b - 7.2</i> <i>a + 33.7</i>	55 22.87	+ 0.95	23.82	44.66				
	1935	+ 37 58	N	<i>s</i> <i>Q + 1.20</i>	49 1.22	+ 1.13	2.35	N	<i>s</i> <i>Q + 1.67</i>	57 46.53	+ 0.55	47.08	44.73				
	1942	+ 38 30	N		50 31.25	+ 1.13	32.38	N		59 16.62	+ 0.54	17.16	44.78				
	1947	+ 38 6	N		51 29.49	+ 1.13	30.62	N		6 0 14.92	+ 0.55	15.47	44.85				
	1958	+ 14 47	S		52 53.82	+ 1.05	54.87	S		1 38.50	+ 1.08	39.58	44.71				
	1971	+ 23 8	S		54 37.93	+ 1.09	39.02	S		3 22.78	+ 0.94	23.72	44.70				
	1975	+ 23 2	S		55 24.28	+ 1.09	25.37	S		4 9.17	+ 0.94	10.11	44.74				

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0.023$ $S_N - S_S = - 0.001$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1881					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 19	2047	+ 22 34	S	<i>I. P. E.</i>	6 7 55.39	-1.32	54.07	S	<i>I. P. E.</i>	6 16 41.01	-2.39	38.62	8 44.55			
	2063	+ 23 31	S	<i>c - 1.6</i> <i>d</i>	10 27.89	-1.31	26.58	S	<i>c - 23.1</i> <i>d</i>	19 13.63	-2.43	11.20	44.62			
	2082	+ 30 34	N	<i>b - 2.6</i> <i>a - 9.3</i>	13 5.28	-1.29	3.99	N	<i>b - 7.2</i> <i>a + 33.7</i>	21 51.14	-2.57	48.57	44.58			
	2097	+ 28 17	N	<i>s</i> <i>Q - 1.20</i>	15 1.51	-1.30	0.21	N	<i>s</i> <i>Q - 1.67</i>	23 47.25	-2.53	44.72	44.51			
	2110	+ 32 32	N		16 51.44	-1.28	50.16	N		25 37.31	-2.63	34.68	44.52			
	2129	+ 14 15	S		18 60.06	-1.35	58.71	S		27 45.55	-2.24	43.31	44.60			
	2139	+ 38 33	N		20 32.53	-1.27	31.26	N		29 18.63	-2.80	15.83	44.57			
	2154	+ 24 42	N (S		22 19.28 22 19.35	-1.31 -1.31	17.97 18.04	N S		31 5.00 31 4.98	-2.45 -2.45	2.55 2.53	44.58 44.49			
Dec. 20	1896	+ 25 56	N	<i>I. P. E.</i>	5 42 35.13	+1.16	36.29	N	<i>I. P. E.</i>	5 51 20.09	+0.75	20.84	8 44.55			
	1907	+ 12 48	S	<i>c - 0.7</i> <i>d</i>	44 9.44	+1.10	10.54	S	<i>c - 23.2</i> <i>d</i>	52 54.10	+1.00	55.10	44.56			
	1925	+ 22 24	S	<i>b - 0.7</i> <i>a - 10.1</i>	46 28.80	+1.14	29.94	S	<i>b - 9.6</i> <i>a + 33.3</i>	55 13.68	+0.83	14.51	44.57			
	1935	+ 37 58	N	<i>s</i> <i>Q + 1.20</i>	48 51.83	+1.22	53.05	N	<i>s</i> <i>Q + 1.61</i>	57 37.32	+0.44	37.76	44.71			
	1942	+ 38 30	N		50 21.87	+1.22	23.09	N		59 7.39	+0.42	7.81	44.72			
	1917	+ 38 6	N		51 20.17	+1.22	21.30	N		6 0 5.56	+0.42	5.98	44.50			
	1958	+ 14 47	S		52 44.62	+1.11	45.73	S		1 29.28	+0.97	30.25	44.52			
	1971	+ 23 8	S		54 28.63	+1.14	29.77	S		3 13.54	+0.82	14.36	44.59			
	1975	+ 23 2	S		55 15.00	+1.14	16.14	S		3 59.94	+0.82	60.76	44.62			
Dec. 20	2047	+ 22 34	S	<i>I. P. E.</i>	6 7 46.18	-1.26	44.92	S	<i>I. P. E.</i>	6 16 31.88	-2.39	29.49	8 44.57			
	2063	+ 23 31	S	<i>c - 0.7</i> <i>d</i>	10 18.66	-1.25	17.41	S	<i>c - 23.2</i> <i>d</i>	19 4.51	-2.43	2.08	44.67			
	2064	+ 23 24	S	<i>b - 0.7</i> <i>a - 10.1</i>	10 19.48	-1.25	18.23	S	<i>b - 9.6</i> <i>a + 33.3</i>	19 5.27	-2.41	2.86	44.63			
	2082	+ 30 34	N	<i>s</i> <i>Q - 1.20</i>	12 55.97	-1.22	54.75	N	<i>s</i> <i>Q - 1.61</i>	21 41.98	-2.57	39.41	44.66			
	2097	+ 28 17	N		14 52.23	-1.23	51.00	N		23 38.12	-2.53	35.59	44.59			
	2110	+ 32 32	N		16 42.15	-1.21	40.94	N		25 28.18	-2.64	25.54	44.60			
	2129	+ 14 15	S		18 50.86	-1.29	49.57	S		27 36.37	-2.24	34.13	44.56			
	2139	+ 38 33	N		20 23.15	-1.18	21.97	N		29 9.50	-2.80	6.70	44.73			
	2154	+ 24 42	N (S		22 9.97 22 9.98	-1.25 -1.25	8.72 8.73	N S		30 55.91 30 55.79	-2.45 -2.45	53.46 53.34	44.74 44.61			

NOTE.  $1^d = 0^m 02.25$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $84^{\circ} 41' 39''$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $85^{\circ} 28' 42''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heuride, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 4	2082	+30 34	N	<i>I. P. E.</i>	6 20 19.57	+1.28	20.85	N	<i>I. P. W.</i>	6 22 46.37	+1.15	47.52	+2 26.67			
	2097	+28 17	N	$\begin{matrix} d \\ c - 6.8 \\ b + 0.7 \\ a - 3.6 \end{matrix}$	22 15.76	+1.28	17.04	N	$\begin{matrix} d \\ c - 3.2 \\ b + 2.1 \\ a - 23.1 \end{matrix}$	24 42.63	+1.13	43.76	26.72			
	2110	+32 32	N	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	24 5.78	+1.28	7.06	N	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	26 32.55	+1.17	33.72	26.66			
	2129	+14 15	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	26 14.28	+1.28	15.56	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	28 41.26	+1.00	42.26	26.70			
	2139	+38 33	N	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	27 46.87	+1.28	48.15	N	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	30 13.56	+1.25	14.81	26.66			
	2154	+24 42	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	29 33.56	+1.28	34.84	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	32 0.39	+1.09	1.48	26.64			
	2173	+19 46	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	32 24.06	+1.28	25.34	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	34 50.97	+1.04	52.01	26.67			
	2184	+16 31	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	33 53.62	+1.28	54.90	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	36 20.59	+1.02	21.61	26.71			
				Mean, $T_E$	6 27 4											
Jan. 4	2239	+38 35	N	<i>I. P. E.</i>	6 44 31.43	-1.58	29.85	N	<i>I. P. W.</i>	6 46 57.36	-1.03	56.33	+2 26.48			
	2241	+38 39	N	$\begin{matrix} d \\ c - 6.8 \\ b + 0.7 \\ a - 3.6 \end{matrix}$	45 15.29	-1.58	13.71	N	$\begin{matrix} d \\ c - 3.2 \\ b + 2.1 \\ a - 23.1 \end{matrix}$	47 41.21	-1.03	40.18	26.47			
	2255	+13 20	S	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	47 22.20	-1.59	20.61	S	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	49 48.55	-1.28	47.27	26.66			
	2265	+17 53	S	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	48 47.81	-1.58	46.23	S	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	51 14.08	-1.25	12.83	26.60			
	2275	+26 14	N	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	50 54.27	-1.58	52.69	N	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	53 20.42	-1.17	19.25	26.56			
	2285	+16 15	S	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	52 51.95	-1.58	50.37	S	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	55 18.19	-1.26	16.93	26.56			
	2301	+29 33	N	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	55 23.68	-1.58	22.10	N	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	57 49.79	-1.14	48.65	26.55			
	2313	+22 49	S	$\begin{matrix} s \\ Q - 1.43 \end{matrix}$	57 35.24	-1.57	33.67	S	$\begin{matrix} s \\ Q - 1.14 \end{matrix}$	7 0 1.37	-1.21	0.16	26.49			
				Mean, $T_E$	6 50 20											
Jan. 5	2082	+30 34	N	<i>I. P. E.</i>	6 20 14.57	+1.20	15.77	N	<i>I. P. W.</i>	6 22 36.24	+1.20	37.44	+2 21.67			
	2097	+28 17	N	$\begin{matrix} d \\ c - 7.1 \\ b - 1.9 \\ a + 0.7 \end{matrix}$	22 10.73	+1.20	11.93	N	$\begin{matrix} d \\ c - 3.2 \\ b + 4.2 \\ a - 17.6 \end{matrix}$	24 32.44	+1.18	33.62	21.69			
	2110	+32 32	N	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	24 0.77	+1.19	1.96	N	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	26 22.38	+1.21	23.59	21.63			
	2129	+14 15	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	26 9.30	+1.23	10.53	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	28 31.08	+1.08	32.16	21.63			
	2139	+38 33	N	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	27 41.90	+1.16	43.06	N	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	30 3.42	+1.27	4.69	21.63			
	2154	+24 42	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	29 28.57	+1.20	29.77	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	31 50.21	+1.15	51.36	21.59			
	2173	+19 46	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	32 19.05	+1.21	20.26	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	34 40.76	+1.11	41.87	21.61			
	2184	+16 31	S	$\begin{matrix} s \\ Q + 1.43 \end{matrix}$	33 48.66	+1.23	49.89	S	$\begin{matrix} s \\ Q + 1.14 \end{matrix}$	36 10.34	+1.10	11.44	21.55			
				Mean, $T_E$	6 26 59											

NOTE  $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $85^{\circ} 28' 42''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 5	2239	+38 35	N	<i>I. P. E.</i>	6 44 26.43	-1.70	24.73	N	<i>I. P. W.</i>	6 46 47.17	-1.01	46.16	+2 21.43			
	2241	+38 39	N	<i>d</i>	45 10.26	-1.70	8.56	N	<i>d</i>	47 31.10	-1.01	30.09	21.53			
	2255	+13 20	S	<i>c - 7.1</i> <i>b - 1.9</i> <i>a + 0.7</i>	47 17.20	-1.63	15.57	S	<i>c - 3.2</i> <i>b + 4.2</i> <i>a - 17.6</i>	49 38.30	-1.21	37.09	21.52			
	2265	+17 53	S	<i>s</i>	48 42.80	-1.64	41.16	S	<i>s</i>	51 3.84	-1.18	2.66	21.50			
	2275	+26 14	N	<i>Q - 1.43</i>	50 49.28	-1.66	47.62	N	<i>Q - 1.14</i>	53 10.23	-1.11	9.12	21.50	<i>m s</i> + 2 21.484	+ 0.094	
	2285	+16 15	S		52 46.96	-1.63	45.33	S		55 8.00	-1.19	6.81	21.48			
	2301	+29 33	N		55 18.71	-1.66	17.05	N		57 39.65	-1.09	38.56	21.51			
	2313	+22 49	S		57 30.27	-1.65	28.62	S		59 51.17	-1.15	50.02	21.40			
				Mean, $T_E$	6 50 15											+ 2 21.587
Jan. 6	2082	+30 34	N	<i>I. P. E.</i>	6 20 9.18	+1.32	10.50	N	<i>I. P. W.</i>	6 22 25.48	+1.01	26.49	+2 15.99			
	2097	+28 17	N	<i>d</i>	22 5.31	+1.32	6.63	N	<i>d</i>	24 21.71	+0.99	22.70	16.07			
	2110	+32 32	N	<i>c + 0.1</i> <i>b - 4.9</i> <i>a - 5.9</i>	23 55.36	+1.32	56.68	N	<i>c - 1.0</i> <i>b - 5.5</i> <i>a - 22.4</i>	26 11.63	+1.02	12.65	15.97			
	2129	+14 15	S	<i>s</i>	26 3.88	+1.30	5.18	S	<i>s</i>	28 20.32	+0.89	21.21	16.03			
	2154	+24 42	S	<i>Q + 1.43</i>	29 23.19	+1.31	24.50	S	<i>Q + 1.14</i>	31 39.51	+0.95	40.46	15.96	<i>m s</i> + 2 15.993	+ 0.100	
	2173	+19 46	S		32 13.72	+1.30	15.02	S		34 30.04	+0.93	30.97	15.95			
	2184	+16 31	S		33 43.25	+1.30	44.55	S		35 59.63	+0.90	60.53	15.98			+ 2 16.103
				Mean, $T_E$	6 26 48											
Jan. 6	2239	+38 35	N	<i>I. P. E.</i>	6 44 21.02	-1.53	19.49	N	<i>I. P. W.</i>	6 46 36.57	-1.20	35.37	+2 15.88			
	2241	+38 39	N	<i>d</i>	45 4.85	-1.53	3.32	N	<i>d</i>	47 20.43	-1.20	19.23	15.91			
	2255	+13 20	S	<i>c + 0.1</i> <i>b - 4.9</i> <i>a - 5.9</i>	47 11.83	-1.57	10.26	S	<i>c - 1.0</i> <i>b - 5.5</i> <i>a - 22.4</i>	49 27.60	-1.40	26.20	15.94			
	2265	+17 53	S	<i>s</i>	48 37.44	-1.56	35.88	S	<i>s</i>	50 53.13	-1.37	51.76	15.88			
	2275	+26 14	N	<i>Q - 1.43</i>	50 43.93	-1.54	42.39	N	<i>Q - 1.14</i>	52 59.50	-1.31	58.19	15.80	<i>m s</i> + 2 15.866	+ 0.100	
	2285	+16 15	S		52 41.62	-1.56	40.06	S		54 57.28	-1.39	55.89	15.83			
	2301	+29 33	N		55 13.33	-1.55	11.78	N		57 28.91	-1.28	27.63	15.85			
	2313	+22 49	S		57 24.85	-1.55	23.30	S		59 40.47	-1.33	39.14	15.84			+ 2 15.975
				Mean, $T_E$	6 50 10											

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation  $\frac{1}{2}$ , all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ : AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 7	2082	+30 34	N	<i>I. P. W.</i>	6 20 4.13	+1.48	5.61	N	<i>I. P. E.</i>	6 22 14.06	+1.11	15.17	+2 9.56			
	2097	+28 17	N	<i>d</i> $c + 0.2$	22 0.35	+1.49	1.84	N	<i>d</i> $c - 2.3$	24 10.24	+1.07	11.31	9.47			
	2110	+32 32	N	$b + 2.6$ $a + 1.8$	23 50.29	+1.48	51.77	N	$b - 1.2$ $a - 35.4$	26 0.25	+1.15	1.40	9.63			
	2139	+38 33	N	<i>s</i> $Q + 1.41$	27 31.35	+1.48	32.83	N	<i>s</i> $Q + 1.14$	29 41.25	+1.25	42.50	9.67			
	2154	+24 42	S		29 18.04	+1.48	19.52	S		31 28.07	+1.02	29.09	9.57	<i>m s</i> +2 9.603	+ 0.100	+ 0.008
	2173	+19 46	S		32 8.51	+1.47	9.98	S		34 18.68	+0.95	19.63	9.65			
	2184	+16 31	S		33 38.12	+1.48	39.60	S		35 48.36	+0.91	49.27	9.67			+2 9.711
				Mean, $T_E$	6 26 56											
Jan. 7	2239	+38 35	N	<i>I. P. W.</i>	6 44 15.96	-1.34	14.62	N	<i>I. P. E.</i>	6 46 25.00	-1.03	23.97	+2 9.35			
	2241	+38 39	N	<i>d</i> $c + 0.2$	44 59.79	-1.34	58.45	N	<i>d</i> $c - 2.3$	47 8.86	-1.03	7.83	9.38			
	2255	+13 20	S	$b + 2.6$ $a + 1.8$	47 6.71	-1.34	5.37	S	$b - 1.2$ $a - 35.4$	49 16.30	-1.41	14.89	9.52			
	2275	+26 14	N	<i>s</i> $Q - 1.41$	50 38.76	-1.33	37.43	N	<i>s</i> $Q - 1.14$	52 48.03	-1.24	46.79	9.36			
	2285	+16 15	S		52 36.44	-1.34	35.10	S		54 45.94	-1.37	44.57	9.47	<i>m s</i> +2 9.397	+ 0.100	+ 0.008
	2301	+29 33	N		55 8.23	-1.33	6.90	N		57 17.43	-1.19	16.24	9.34			+2 9.505
	2313	+22 49	S		57 19.73	-1.35	18.38	S		59 29.03	-1.29	27.74	9.36			
				Mean, $T_E$	6 50 18											
Jan. 9	2082	+30 34	N	<i>I. P. W.</i>	6 19 53.80	+1.49	55.29	N	<i>I. P. E.</i>	6 21 51.98	+1.20	53.18	+1 57.89			
	2097	+28 17	N	<i>d</i> $c + 4.0$	21 49.91	+1.49	51.40	N	<i>d</i> $c - 2.4$	23 48.17	+1.17	49.34	57.94			
	2110	+32 32	N	$b - 0.8$ $a - 1.0$	23 39.88	+1.50	41.38	N	$b + 2.2$ $a - 38.0$	25 38.05	+1.24	39.29	57.91			
	2120	+14 15	S	<i>s</i> $Q + 1.41$	25 48.42	+1.48	49.90	S	<i>s</i> $Q + 1.14$	27 46.86	+0.94	47.80	57.90			
	2139	+38 33	N		27 20.95	+1.52	22.47	N		29 19.06	+1.35	20.41	57.94	<i>m s</i> +1 57.883	+ 0.096	+ 0.009
	2154	+24 42	S		29 7.69	+1.49	9.18	S		31 5.96	+1.10	7.06	57.88			
	2173	+19 46	S		31 58.20	+1.49	59.69	S		33 56.49	+1.02	57.51	57.82			
	2184	+16 31	S		33 27.84	+1.48	29.32	S		35 26.13	+0.97	27.10	57.78			+1 57.988
				Mean, $T_E$	6 26 38											

NOTE.  $1^4 = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heavyside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .014 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .032	M <sub>N</sub>
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 9	2239	+38 35	N	<i>I. P. W.</i>	6 44 5' 52	-1' 30	4' 22	N	<i>I. P. E.</i>	6 46 2' 95	-0' 93	2' 02	+1 57' 80				
	2241	+38 39	N	<i>d</i>	44 49' 39	-1' 30	48' 09	N	<i>d</i>	46 46' 81	-0' 93	45' 88	57' 79				
	2255	+13 20	S	<i>c + 4' 0</i> <i>b - 0' 8</i> <i>a - 1' 0</i>	46 56' 37	-1' 34	55' 03	S	<i>c - 2' 4</i> <i>b + 2' 2</i> <i>a - 38' 0</i>	48 54' 13	-1' 36	52' 77	57' 74				
	2265	+17 53	S	<i>s</i>	48 21' 94	-1' 33	20' 61	S	<i>s</i>	50 19' 68	-1' 29	18' 39	57' 78				
	2275	+26 14	N	<i>Q - 1' 41</i>	50 28' 36	-1' 33	27' 03	N	<i>Q - 1' 14</i>	52 25' 99	-1' 15	24' 84	57' 81				
	2285	+16 15	S		52 26' 08	-1' 34	24' 74	S		54 23' 87	-1' 31	22' 56	57' 82				
	2301	+29 33	N		54 57' 90	-1' 33	56' 57	N		56 55' 35	-1' 09	54' 26	57' 69				
	2313	+22 49	S		57 9' 39	-1' 33	8' 06	S		59 7' 00	-1' 21	5' 79	57' 73				
				Mean, T <sub>R</sub>	6 49 54												
Jan. 10	2082	+30 34	N	<i>I. P. W.</i>	6 19 48' 13	+1' 46	49' 59	N	<i>I. P. E.</i>	6 21 41' 62	+1' 27	42' 89	+1 53' 30				
	2097	+28 17	N	<i>d</i>	21 44' 30	+1' 46	45' 76	N	<i>d</i>	23 37' 83	+1' 23	39' 06	53' 30				
	2110	+32 32	N	<i>c + 6' 6</i> <i>b - 5' 2</i> <i>a - 7' 7</i>	23 34' 27	+1' 48	35' 75	N	<i>c - 1' 4</i> <i>b + 3' 4</i> <i>a - 42' 2</i>	25 27' 78	+1' 31	29' 09	53' 34				
	2129	+14 15	S	<i>s</i>	25 42' 87	+1' 41	44' 28	S	<i>s</i>	27 36' 61	+0' 98	37' 59	53' 31				
	2139	+38 33	N	<i>Q + 1' 41</i>	27 15' 33	+1' 51	16' 84	N	<i>Q + 1' 15</i>	29 8' 72	+1' 46	10' 18	53' 34				
	2154	+24 42	S		29 2' 10	+1' 45	3' 55	S		30 55' 63	+1' 15	56' 78	53' 23				
	2173	+19 46	S		31 52' 61	+1' 44	54' 05	S		33 46' 29	+1' 08	47' 37	53' 32				
	2184	+16 31	S		33 22' 23	+1' 42	23' 65	S		35 15' 92	+1' 02	16' 94	53' 29				
				Mean, T <sub>R</sub>	6 26 33												
Jan. 10	2239	+38 35	N	<i>I. P. W.</i>	6 43 59' 80	-1' 31	58' 49	N	<i>I. P. E.</i>	6 45 52' 66	-0' 84	51' 82	+1 53' 33				
	2241	+38 39	N	<i>d</i>	44 43' 67	-1' 31	42' 36	N	<i>d</i>	46 36' 51	-0' 84	35' 67	53' 31				
	2255	+13 20	S	<i>c + 6' 6</i> <i>b - 5' 2</i> <i>a - 7' 7</i>	46 50' 75	-1' 41	49' 34	S	<i>c - 1' 4</i> <i>b + 3' 4</i> <i>a - 42' 2</i>	48 43' 93	-1' 33	42' 60	53' 26				
	2265	+17 53	S	<i>s</i>	48 16' 36	-1' 39	14' 97	S	<i>s</i>	50 9' 42	-1' 25	8' 17	53' 20				
	2275	+26 14	N	<i>Q - 1' 41</i>	50 22' 69	-1' 36	21' 33	N	<i>Q - 1' 15</i>	52 15' 71	-1' 11	14' 60	53' 27				
	2285	+16 15	S		52 20' 42	-1' 40	19' 02	S		54 13' 57	-1' 28	12' 29	53' 27				
	2301	+29 33	N		54 52' 14	-1' 35	50' 79	N		56 45' 05	-1' 05	44' 00	53' 21				
	2313	+22 49	S		57 3' 73	-1' 38	2' 35	S		58 56' 73	-1' 17	55' 56	53' 21				
				Mean, T <sub>R</sub>	6 49 49												

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation with all records having been transcribed by the same person.



OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $85^{\circ} 28' 42''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 4	1681	+28 30	N	<i>I. P. E.</i>	5 18 10.44	+1.28	11.72	N	<i>I. P. W.</i>	5 31 6.25	+1.13	7.38	12 55.66			
	1701	+15 46	S	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	20 19.00	+1.28	20.28	S	$\begin{matrix} c - d \\ b + 3.2 \\ a - 23.1 \end{matrix}$	33 14.94	+1.02	15.96	55.68			
	1711	+20 27	S	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	22 34.52	+1.28	35.80	S	$\begin{matrix} c - d \\ b + 2.1 \\ a - 23.1 \end{matrix}$	35 30.32	+1.05	31.37	55.57			
	1723	+32 6	N	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	24 23.51	+1.28	24.79	N	$\begin{matrix} c - d \\ b + 2.1 \\ a - 23.1 \end{matrix}$	37 19.10	+1.17	20.27	55.48			
	1727	+32 12	N	$Q + 1.43$	24 54.87	+1.28	56.15	N	$Q + 1.14$	37 50.58	+1.17	51.75	55.60	$\begin{matrix} m s \\ 12 55.581 \end{matrix}$	+ 0.045	+ 0.008
	1742	+23 58	S		27 35.18	+1.28	36.46	S		40 30.92	+1.08	32.00	55.54			
	1754	+26 51	N		29 7.21	+1.28	8.49	N		42 2.92	+1.11	4.03	55.54			12 55.634
Jan. 4	1810	+16 2	S	<i>I. P. E.</i>	5 37 28.51	-1.58	26.93	S	<i>I. P. W.</i>	5 50 23.76	-1.26	22.50	12 55.57			
	1829	+24 39	S	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	40 4.56	-1.58	2.98	S	$\begin{matrix} c - d \\ b + 3.2 \\ a - 23.1 \end{matrix}$	52 59.73	-1.19	58.54	55.56			
	1837	+24 32	S	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	41 9.73	-1.58	8.15	S	$\begin{matrix} c - d \\ b + 2.1 \\ a - 23.1 \end{matrix}$	54 4.90	-1.19	3.71	55.56			
	1850	+32 5	N	$\begin{matrix} c - d \\ b + 0.7 \\ a - 3.6 \end{matrix}$	43 7.69	-1.58	6.11	N	$\begin{matrix} c - d \\ b + 2.1 \\ a - 23.1 \end{matrix}$	56 2.83	-1.11	1.72	55.61	$\begin{matrix} m s \\ 12 55.606 \end{matrix}$	+ 0.045	+ 0.010
	1863	+27 35	N	$Q - 1.43$	45 17.94	-1.57	16.37	N	$Q - 1.14$	58 13.17	-1.16	12.01	55.64			12 55.661
	1875	+31 41	N		46 42.88	-1.58	41.30	N		59 38.08	-1.11	36.97	55.67			
	1907	+12 48	S		51 37.87	-1.59	36.28	S		6 4 33.20	-1.29	31.91	55.63			
Jan. 5	1663	+37 16	N	<i>I. P. E.</i>	5 15 53.88	+1.18	55.06	N	<i>I. P. W.</i>	5 28 49.43	+1.26	50.69	12 55.63			
	1681	+28 30	N	$\begin{matrix} c - d \\ b + 1.9 \\ a + 0.7 \end{matrix}$	18 5.47	+1.20	6.67	N	$\begin{matrix} c - d \\ b + 4.2 \\ a - 17.6 \end{matrix}$	31 1.25	+1.18	2.43	55.76			
	1701	+15 46	S	$\begin{matrix} c - d \\ b + 1.9 \\ a + 0.7 \end{matrix}$	20 14.08	+1.23	15.31	S	$\begin{matrix} c - d \\ b + 4.2 \\ a - 17.6 \end{matrix}$	33 9.88	+1.09	10.97	55.66			
	1711	+20 27	S	$\begin{matrix} c - d \\ b + 1.9 \\ a + 0.7 \end{matrix}$	22 29.53	+1.21	30.74	S	$\begin{matrix} c - d \\ b + 4.2 \\ a - 17.6 \end{matrix}$	35 25.35	+1.11	26.46	55.72			
	1723	+32 6	N	$Q + 1.43$	24 18.51	+1.19	19.70	N	$Q + 1.14$	37 14.21	+1.20	15.41	55.71	$\begin{matrix} m s \\ 12 55.700 \end{matrix}$	+ 0.046	+ 0.007
	1727	+32 12	N		24 49.88	+1.19	51.07	N		37 45.61	+1.20	46.81	55.74			12 55.753
	1742	+23 58	S		27 30.17	+1.20	31.37	S		40 25.92	+1.15	27.07	55.70			
	1754	+26 51	N		29 2.23	+1.20	3.43	N		41 57.94	+1.17	59.11	55.68			

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation with all records having been transcribed by the same person. $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .014 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .032	δL <sub>N</sub> - ρ
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 5	1810	+16 2	S	<i>I. P. E.</i>	5 37 23.57	-1 <sup>m</sup> .63	21 <sup>m</sup> .94	S	<i>I. P. W.</i>	5 50 18.75	-1 <sup>m</sup> .19	17 <sup>m</sup> .56	12 55.62	<i>m s</i> 12 55.645	+ 0 <sup>s</sup> .046	+ 0 <sup>s</sup> .011	12 55.702
	1829	+24 39	S	<i>d</i>	39 59.58	-1 <sup>m</sup> .66	57 <sup>m</sup> .92	S	<i>d</i>	52 54.76	-1 <sup>m</sup> .13	53 <sup>m</sup> .63	55 <sup>m</sup> .71				
	1837	+24 32	S	<i>c</i> - 7 <sup>m</sup> .1 <i>b</i> - 1 <sup>m</sup> .9 <i>a</i> + 0 <sup>m</sup> .7	41 4.78	-1 <sup>m</sup> .66	3 <sup>m</sup> .12	S	<i>c</i> - 3 <sup>m</sup> .2 <i>b</i> + 4 <sup>m</sup> .2 <i>a</i> - 17 <sup>m</sup> .6	53 59.91	-1 <sup>m</sup> .13	58 <sup>m</sup> .78	55 <sup>m</sup> .66				
	1850	+32 5	N	<i>s</i>	43 2.85	-1 <sup>m</sup> .67	1 <sup>m</sup> .18	N	<i>s</i>	55 57.88	-1 <sup>m</sup> .08	56 <sup>m</sup> .80	55 <sup>m</sup> .62				
	1863	+27 35	N	<i>Q</i> - 1 <sup>m</sup> .43	45 13.04	-1 <sup>m</sup> .66	11 <sup>m</sup> .38	N	<i>Q</i> - 1 <sup>m</sup> .14	58 8.11	-1 <sup>m</sup> .10	7 <sup>m</sup> .01	55 <sup>m</sup> .63				
	1875	+31 41	N		46 38.03	-1 <sup>m</sup> .66	36 <sup>m</sup> .37	N		59 33.08	-1 <sup>m</sup> .07	32 <sup>m</sup> .01	55 <sup>m</sup> .64				
	1893	+ 9 29	S		49 17.10	-1 <sup>m</sup> .63	15 <sup>m</sup> .47	S		6 2 12.33	-1 <sup>m</sup> .24	11 <sup>m</sup> .09	55 <sup>m</sup> .62				
	1907	+12 48	S		51 32.96	-1 <sup>m</sup> .63	31 <sup>m</sup> .33	S		4 28.20	-1 <sup>m</sup> .21	26 <sup>m</sup> .99	55 <sup>m</sup> .66				
Jan. 6	1603	+37 16	N	<i>I. P. E.</i>	5 15 48.27	+1 <sup>m</sup> .34	49 <sup>m</sup> .61	N	<i>I. P. W.</i>	5 28 44.33	+1 <sup>m</sup> .07	45 <sup>m</sup> .40	12 55.79	<i>m s</i> 12 55.786	+ 0 <sup>s</sup> .046	+ 0 <sup>s</sup> .007	12 55.839
	1681	+28 30	N	<i>d</i>	17 59.93	+1 <sup>m</sup> .32	61 <sup>m</sup> .25	N	<i>d</i>	30 56.11	+0 <sup>m</sup> .99	57 <sup>m</sup> .10	55 <sup>m</sup> .85				
	1701	+15 46	S	<i>c</i> + 0 <sup>m</sup> .1 <i>b</i> - 4 <sup>m</sup> .9 <i>a</i> - 5 <sup>m</sup> .9	20 8.59	+1 <sup>m</sup> .30	9 <sup>m</sup> .89	S	<i>c</i> - 1 <sup>m</sup> .0 <i>b</i> - 5 <sup>m</sup> .5 <i>a</i> - 22 <sup>m</sup> .4	33 4.76	+0 <sup>m</sup> .89	5 <sup>m</sup> .65	55 <sup>m</sup> .76				
	1711	+20 27	S	<i>s</i>	22 24.06	+1 <sup>m</sup> .30	25 <sup>m</sup> .36	S	<i>s</i>	35 20.16	+0 <sup>m</sup> .93	21 <sup>m</sup> .09	55 <sup>m</sup> .73				
	1723	+32 6	N	<i>Q</i> + 1 <sup>m</sup> .43	24 13.00	+1 <sup>m</sup> .32	14 <sup>m</sup> .32	N	<i>Q</i> + 1 <sup>m</sup> .14	37 9.07	+1 <sup>m</sup> .02	10 <sup>m</sup> .09	55 <sup>m</sup> .77				
	1727	+32 12	N		24 44.39	+1 <sup>m</sup> .32	45 <sup>m</sup> .71	N		37 40.51	+1 <sup>m</sup> .02	41 <sup>m</sup> .53	55 <sup>m</sup> .82				
	1742	+23 58	S		27 24.62	+1 <sup>m</sup> .31	25 <sup>m</sup> .93	S		40 20.84	+0 <sup>m</sup> .94	21 <sup>m</sup> .78	55 <sup>m</sup> .85				
	1754	+26 51	N		28 56.74	+1 <sup>m</sup> .32	58 <sup>m</sup> .06	N		41 52.81	+0 <sup>m</sup> .97	53 <sup>m</sup> .78	55 <sup>m</sup> .72				
Jan. 6	1810	+16 2	S	<i>I. P. E.</i>	5 37 18.11	-1 <sup>m</sup> .56	16 <sup>m</sup> .55	S	<i>I. P. W.</i>	5 50 13.66	-1 <sup>m</sup> .39	12 <sup>m</sup> .27	12 55.72	<i>m s</i> 12 55.646	+ 0 <sup>s</sup> .046	+ 0 <sup>s</sup> .011	12 55.703
	1829	+24 39	S	<i>d</i>	39 54.14	-1 <sup>m</sup> .55	52 <sup>m</sup> .59	S	<i>d</i>	52 49.67	-1 <sup>m</sup> .33	48 <sup>m</sup> .34	55 <sup>m</sup> .75				
	1837	+24 32	S	<i>c</i> + 0 <sup>m</sup> .1 <i>b</i> - 4 <sup>m</sup> .9 <i>a</i> - 5 <sup>m</sup> .9	40 59.34	-1 <sup>m</sup> .55	57 <sup>m</sup> .79	S	<i>c</i> - 1 <sup>m</sup> .0 <i>b</i> - 5 <sup>m</sup> .5 <i>a</i> - 22 <sup>m</sup> .4	53 54.83	-1 <sup>m</sup> .33	53 <sup>m</sup> .50	55 <sup>m</sup> .71				
	1850	+32 5	N	<i>s</i>	42 57.32	-1 <sup>m</sup> .54	55 <sup>m</sup> .78	N	<i>s</i>	55 52.70	-1 <sup>m</sup> .27	51 <sup>m</sup> .43	55 <sup>m</sup> .65				
	1863	+27 35	N	<i>Q</i> - 1 <sup>m</sup> .43	45 7.59	-1 <sup>m</sup> .54	6 <sup>m</sup> .05	N	<i>Q</i> - 1 <sup>m</sup> .14	58 2.95	-1 <sup>m</sup> .30	1 <sup>m</sup> .65	55 <sup>m</sup> .60				
	1875	+31 41	N		46 32.53	-1 <sup>m</sup> .54	30 <sup>m</sup> .99	N		59 27.89	-1 <sup>m</sup> .27	26 <sup>m</sup> .62	55 <sup>m</sup> .63				
	1893	+ 9 29	S		49 11.68	-1 <sup>m</sup> .57	10 <sup>m</sup> .11	S		6 2 7.13	-1 <sup>m</sup> .43	5 <sup>m</sup> .70	55 <sup>m</sup> .59				
	1907	+12 48	S		51 27.61	-1 <sup>m</sup> .57	26 <sup>m</sup> .04	S		4 22.97	-1 <sup>m</sup> .41	21 <sup>m</sup> .56	55 <sup>m</sup> .52				

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $85^{\circ} 28' 42''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $S_N - S_E = + 0^{\circ}.014$ $H_N - H_E = + 0^{\circ}.032$
			By Strahan, with Telescope No. 2					By Heaviside, with Telescope No. 1					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				$\delta L_N - \rho$
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 7	1663	+37 16	N	<i>I. P. W.</i>	5 15 43.49	+1.48	44.97	N	<i>I. P. E.</i>	5 28 39.17	+1.23	40.40	12 55.43			
	1681	+28 30	N	<i>c + 0.2</i> <i>d</i>	17 55.10	+1.49	56.59	N	<i>c + 0.2</i> <i>d</i>	30 50.97	+1.08	52.05	55.46			
	1701	+15 46	S	<i>b + 2.6</i> <i>a + 1.8</i>	20 3.69	+1.48	5.17	S	<i>b + 2.6</i> <i>a + 1.8</i>	32 59.67	+0.90	60.57	55.40			
	1711	+20 27	S	<i>s</i> <i>Q + 1.41</i>	22 19.15	+1.47	20.62	S	<i>s</i> <i>Q + 1.14</i>	35 15.03	+0.96	15.99	55.37	<i>m s</i> 12 55.394	+ 0.045	
	1723	+32 6	N		24 8.16	+1.48	9.64	N		37 3.86	+1.14	5.00	55.36			
	1727	+32 12	N		24 39.52	+1.48	41.00	N		37 35.26	+1.14	36.40	55.40			
	1742	+23 58	S		27 19.78	+1.48	21.26	S		40 15.60	+1.01	16.61	55.35			
	1754	+26 51	N		28 51.82	+1.49	53.31	N		41 47.64	+1.05	48.69	55.38			
Jan. 7	1837	+24 32	S	<i>I. P. W.</i>	5 40 54.39	-1.34	53.05	S	<i>I. P. E.</i>	5 53 49.69	-1.27	48.42	12 55.37			
	1850	+32 5	N	<i>c + 0.2</i> <i>d</i>	42 52.39	-1.34	51.05	N	<i>c + 0.2</i> <i>d</i>	55 47.57	-1.15	46.42	55.37			
	1863	+27 35	N	<i>b + 2.6</i> <i>a + 1.8</i>	45 2.61	-1.33	1.28	N	<i>b + 2.6</i> <i>a + 1.8</i>	57 57.99	-1.22	56.77	55.49	<i>m s</i> 12 55.408	+ 0.045	
	1875	+31 41	N	<i>s</i> <i>Q - 1.41</i>	46 27.59	-1.34	26.25	N	<i>s</i> <i>Q - 1.14</i>	59 22.78	-1.15	21.63	55.38			
	1893	+9 29	S		49 6.62	-1.34	5.28	S		6 2 2.19	-1.46	0.73	55.45			
	1907	+12 48	S		51 22.49	-1.34	21.15	S		4 17.96	-1.42	16.54	55.39			
Jan. 9	1663	+37 16	N	<i>I. P. W.</i>	5 15 33.16	+1.51	34.67	N	<i>I. P. E.</i>	5 28 28.90	+1.32	30.22	12 55.55			
	1681	+28 30	N	<i>c + 4.0</i> <i>d</i>	17 44.86	+1.49	46.35	N	<i>c + 4.0</i> <i>d</i>	30 40.72	+1.17	41.89	55.54			
	1701	+15 46	S	<i>b + 2.6</i> <i>a + 1.8</i>	19 53.39	+1.48	54.87	S	<i>b + 2.6</i> <i>a + 1.8</i>	32 49.48	+0.96	50.44	55.57	<i>m s</i> 12 55.575	+ 0.048	
	1711	+20 27	S	<i>s</i> <i>Q + 1.41</i>	22 8.84	+1.49	10.33	S	<i>s</i> <i>Q + 1.14</i>	35 4.89	+1.03	5.92	55.59			
	1723	+32 6	N		23 57.84	+1.50	59.34	N		36 53.64	+1.24	54.88	55.54			
	1727	+32 12	N		24 29.13	+1.50	30.63	N		37 24.95	+1.24	26.19	55.56			
	1742	+23 58	S		27 9.38	+1.49	10.87	S		40 5.34	+1.08	6.42	55.55			
	1754	+26 51	N		28 41.41	+1.49	42.90	N		41 37.46	+1.14	38.60	55.70			

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 39": AND FYZABAD (W) Lat. 26° 47', Long. 68° 28' 42".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$	$\delta L_N - \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 9	1810	+ 16 2	S	<i>I. P. W.</i>	5 37 2.75	-1.34	1.41	S	<i>I. P. E.</i>	5 49 58.35	-1.33	57.03	12 55.62				
	1829	+ 24 39	S	<i>d</i>	39 38.82	-1.33	37.49	S	<i>d</i>	52 34.28	-1.18	33.10	55.61				
	1837	+ 24 32	S	<i>c + 4.0</i> <i>b - 0.8</i> <i>a - 1.0</i>	40 44.04	-1.33	42.71	S	<i>c - 2.4</i> <i>b + 2.2</i> <i>a - 38.0</i>	53 39.45	-1.19	38.26	55.55				
	1850	+ 32 5	N	<i>s</i>	42 42.00	-1.32	40.68	N	<i>s</i>	55 37.30	-1.05	36.25	55.57				
	1863	+ 27 35	N	<i>Q - 1.41</i>	44 52.33	-1.33	51.00	N	<i>Q - 1.14</i>	57 47.63	-1.12	46.51	55.51	<i>m s</i> 12 55.608	+ 0.048	+ 0.011	12 55.667
	1875	+ 31 41	N		46 17.24	-1.33	15.91	N		59 12.57	-1.06	11.51	55.60				
	1893	+ 9 29	S		48 56.31	-1.35	54.96	S		6 1 52.06	-1.41	50.65	55.69				
	1907	+ 12 48	S		51 12.16	-1.34	10.82	S		4 7.89	-1.36	6.53	55.71				
Jan. 10	1663	+ 37 16	N	<i>I. P. W.</i>	5 15 27.46	+1.50	28.96	N	<i>I. P. E.</i>	5 28 23.33	+1.42	24.75	12 55.79				
	1681	+ 28 30	N	<i>d</i>	17 39.22	+1.47	40.69	N	<i>d</i>	30 35.15	+1.23	36.38	55.69				
	1701	+ 15 46	S	<i>c + 6.6</i> <i>b - 5.2</i> <i>a - 7.7</i>	19 47.77	+1.41	49.18	S	<i>c - 1.4</i> <i>b + 3.4</i> <i>a - 42.2</i>	32 43.88	+1.01	44.89	55.71				
	1711	+ 20 27	S	<i>s</i>	22 3.24	+1.44	4.68	S	<i>s</i>	34 59.23	+1.09	60.32	55.64				
	1723	+ 32 6	N	<i>Q + 1.41</i>	23 52.17	+1.48	53.65	N	<i>Q + 1.15</i>	36 48.10	+1.31	49.41	55.76	<i>m s</i> 12 55.726	+ 0.050	+ 0.007	12 55.783
	1727	+ 32 12	N		24 23.56	+1.48	25.04	N		37 19.45	+1.31	20.76	55.72				
	1742	+ 23 58	S		27 3.76	+1.45	5.21	S		39 59.81	+1.14	60.95	55.74				
	1754	+ 26 51	N		28 35.86	+1.46	37.32	N		41 31.88	+1.20	33.08	55.76				
Jan. 10	1810	+ 16 2	S	<i>I. P. W.</i>	5 36 57.14	-1.40	55.74	S	<i>I. P. E.</i>	5 49 52.76	-1.29	51.47	12 55.73				
	1829	+ 24 39	S	<i>d</i>	39 33.16	-1.37	31.79	S	<i>d</i>	52 28.67	-1.15	27.52	55.73				
	1837	+ 24 32	S	<i>c + 6.6</i> <i>b - 5.2</i> <i>a - 7.7</i>	40 38.41	-1.37	37.04	S	<i>c - 1.4</i> <i>b + 3.4</i> <i>a - 42.2</i>	53 33.87	-1.15	32.72	55.68				
	1850	+ 32 5	N	<i>s</i>	42 36.34	-1.34	35.00	N	<i>s</i>	55 31.74	-1.00	30.74	55.74				
	1863	+ 27 35	N	<i>Q - 1.41</i>	44 46.59	-1.36	45.23	N	<i>Q - 1.15</i>	57 42.09	-1.08	41.01	55.78	<i>m s</i> 12 55.735	+ 0.050	+ 0.011	12 55.796
	1875	+ 31 41	N		46 11.56	-1.35	10.21	N		59 6.98	-1.01	5.97	55.76				
	1893	+ 9 29	S		48 50.71	-1.41	49.30	S		6 1 46.45	-1.40	45.05	55.75				
	1907	+ 12 48	S		51 6.61	-1.41	5.20	S		4 2.25	-1.34	0.91	55.71				

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^{\text{h}} 41^{\text{m}} 59^{\text{s}}$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^{\text{h}} 28^{\text{m}} 42^{\text{s}}$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^{\text{h}} 01^{\text{m}} 4$ $H_N - H_S = + 0^{\text{h}} 03^{\text{m}} 2$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 4	2483	+ 15 54	S	<i>I. P. E.</i>	7 15 31.80	+ 1.28	33.08	S	<i>I. P. W.</i>	7 28 27.72	+ 1.02	28.74	12 55.66			
	2486	+ 16 5	S	<i>d</i>	15 43.13	+ 1.28	44.41	S	<i>d</i>	28 39.05	+ 1.02	40.07	55.66			
	2493	+ 27 10	N	<i>c - 6.8</i> <i>b + 0.7</i> <i>a - 3.6</i>	17 29.98	+ 1.29	31.27	N	<i>c - 3.2</i> <i>b + 2.1</i> <i>a - 23.1</i>	30 25.78	+ 1.11	26.89	55.62			
	2504	+ 35 19	N	<i>s</i>	19 39.25	+ 1.28	40.53	N	<i>s</i>	32 34.84	+ 1.20	36.04	55.51			
	2514	+ 24 30	S	<i>Q + 1.43</i>	20 55.04	+ 1.28	56.32	S	<i>Q + 1.14</i>	33 50.85	+ 1.09	51.94	55.62			
	2537	+ 13 46	S		24 5.47	+ 1.28	6.75	S		37 1.41	+ 1.00	2.41	55.66			
	2540	+ 26 4	N		25 45.92	+ 1.28	47.20	N		38 41.71	+ 1.10	42.81	55.61			
	2563	+ 33 43	N		28 44.83	+ 1.29	46.12	N		41 40.46	+ 1.19	41.65	55.53			
Jan. 4	2617	+ 27 5	N	<i>I. P. E.</i>	7 35 10.13	- 1.58	8.55	N	<i>I. P. W.</i>	7 48 5.34	- 1.17	4.17	12 55.62			
	2632	+ 20 13	S	<i>d</i>	37 40.13	- 1.58	38.55	S	<i>d</i>	50 35.48	- 1.23	34.25	55.70			
	2700	+ 22 59	S	<i>c - 6.8</i> <i>b + 0.7</i> <i>a - 3.6</i>	48 12.34	- 1.57	10.77	S	<i>c - 3.2</i> <i>b + 2.1</i> <i>a - 23.1</i>	8 1 7.60	- 1.21	6.39	55.62			
	2718	+ 27 50	N	<i>s</i>	50 30.05	- 1.57	28.48	N	<i>s</i>	3 25.24	- 1.16	24.08	55.60			
	2734	+ 32 50	N	<i>Q - 1.43</i>	53 8.35	- 1.58	6.77	N	<i>Q - 1.14</i>	6 3.54	- 1.11	2.43	55.66			
	2744	+ 18 1	S		54 19.91	- 1.58	18.33	S		7 15.25	- 1.25	14.00	55.67			
Jan. 5	2483	+ 15 54	S	<i>I. P. E.</i>	7 15 21.69	+ 1.23	22.92	S	<i>I. P. W.</i>	7 28 17.52	+ 1.09	18.61	12 55.69			
	2486	+ 16 5	S	<i>d</i>	15 33.07	+ 1.23	34.30	S	<i>d</i>	28 28.86	+ 1.09	29.95	55.65			
	2493	+ 27 10	N	<i>c - 7.1</i> <i>b - 1.9</i> <i>a + 0.7</i>	17 19.81	+ 1.20	21.01	N	<i>c - 3.2</i> <i>b + 4.2</i> <i>a - 17.6</i>	30 15.61	+ 1.17	16.78	55.77			
	2504	+ 35 19	N	<i>s</i>	19 29.15	+ 1.18	30.33	N	<i>s</i>	32 24.68	+ 1.24	25.92	55.59			
	2514	+ 24 30	S	<i>Q + 1.43</i>	20 44.96	+ 1.20	46.16	S	<i>Q + 1.14</i>	33 40.61	+ 1.15	41.76	55.60			
	2537	+ 13 46	S		23 55.37	+ 1.23	56.60	S		36 51.17	+ 1.08	52.25	55.65			
	2540	+ 26 4	N		25 35.81	+ 1.20	37.01	N		38 31.51	+ 1.16	32.67	55.66			
	2563	+ 33 43	N		28 34.73	+ 1.19	35.92	N		41 30.29	+ 1.23	31.52	55.60			

NOTE.  $1^{\text{d}} = 0^{\text{h}} 02^{\text{m}} 25^{\text{s}}$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*HAZARIBAGH (E) Lat.  $24^{\circ} 0'$ , Long.  $85^{\circ} 41' 39''$ ; AND FYZABAD (W) Lat.  $26^{\circ} 47'$ , Long.  $85^{\circ} 28' 42''$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Hearside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$	$\delta L_N + \rho$
	R. A. C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 5	2617	+ 27 5	N	<i>I. P. E.</i>	7 34 60.06	-1.66	58.40	N	<i>I. P. W.</i>	7 47 55.07	-1.11	53.96	12 55.56				
	2632	+ 20 13	S	<i>d</i> $c = 7.1$	37 30.13	-1.65	28.48	S	<i>d</i> $c = 3.2$	50 25.23	-1.17	24.06	55.58				
	2672	+ 28 8	N	<i>b = 1.9</i> $a = 0.7$	44 59.67	-1.66	58.01	N	<i>b = 4.2</i> $a = 17.6$	57 54.79	-1.10	53.69	55.68				
	2700	+ 22 59	S	<i>s</i> $Q = -1.43$	48 2.27	-1.65	0.62	S	<i>s</i> $Q = -1.14$	8 0 57.31	-1.15	56.16	55.54				
	2718	+ 27 50	N		50 19.96	-1.66	18.30	N		3 15.07	-1.10	13.97	55.67	<i>m s</i> 12 55.607	+ 0.094	+ 0.008	12 55.709
	2734	+ 32 50	N		52 58.32	-1.67	56.65	N		5 53.29	-1.07	52.22	55.57				
	2744	+ 18 1	S		54 9.84	-1.64	8.20	S		7 5.03	-1.18	3.85	55.65				
Jan. 6	2483	+ 15 54	S	<i>I. P. E.</i>	7 15 10.83	+1.30	12.13	S	<i>I. P. W.</i>	7 28 6.82	+0.89	7.71	12 55.58				
	2486	+ 16 5	S	<i>d</i> $c = 0.1$	15 22.08	+1.30	23.38	S	<i>d</i> $c = 1.0$	28 18.14	+0.89	19.03	55.65				
	2493	+ 27 10	N	<i>b = 4.9</i> $a = 5.9$	17 8.90	+1.32	10.22	N	<i>b = 5.5</i> $a = 22.4$	30 4.89	+0.97	5.86	55.64				
	2504	+ 35 19	N	<i>s</i> $Q = +1.43$	19 18.20	+1.33	19.53	N	<i>s</i> $Q = +1.14$	32 14.06	+1.05	15.11	55.58				
	2514	+ 24 30	S		20 34.00	+1.31	35.31	S		33 29.96	+0.95	30.91	55.60	<i>m s</i> 12 55.610	+ 0.100	+ 0.009	12 55.719
	2537	+ 13 46	S		23 44.45	+1.30	45.75	S		36 40.49	+0.88	41.37	55.62				
	2549	+ 26 4	N		25 24.84	+1.32	26.16	N		38 20.85	+0.96	21.81	55.65				
	2563	+ 33 43	N		28 23.77	+1.33	25.10	N		41 19.63	+1.03	20.66	55.56				
Jan. 6	2617	+ 27 5	N	<i>I. P. E.</i>	7 34 49.07	-1.54	47.53	N	<i>I. P. W.</i>	7 47 44.48	-1.31	43.17	12 55.64				
	2632	+ 20 13	S	<i>d</i> $c = 0.1$	37 19.11	-1.56	17.55	S	<i>d</i> $c = 1.0$	50 14.56	-1.35	13.21	55.66				
	2659	+ 17 38	S	<i>b = 4.9</i> $a = 5.9$	42 33.92	-1.57	32.35	S	<i>b = 5.5</i> $a = 22.4$	55 29.36	-1.37	27.99	55.64				
	2672	+ 28 8	N	<i>s</i> $Q = -1.43$	44 48.66	-1.54	47.12	N	<i>s</i> $Q = -1.14$	57 44.06	-1.30	42.76	55.64				
	2700	+ 22 59	S		47 51.28	-1.55	49.73	S		8 0 46.66	-1.33	45.33	55.60				
	2718	+ 27 50	N		50 9.03	-1.54	7.49	N		3 4.36	-1.30	3.06	55.57	<i>m s</i> 12 55.618	+ 0.100	+ 0.009	12 55.727
	2734	+ 32 50	N		52 47.31	-1.54	45.77	N		5 42.57	-1.26	41.31	55.54				
	2744	+ 18 1	S		53 58.84	-1.56	57.28	S		6 54.30	-1.37	52.93	55.65				

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2				TRANSITS OBSERVED AT W By Heavyside, with Telescope No. 1				Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Peral. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$	$\delta L_N + \rho$
	B. A. C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group	
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Jan. 7	2483	+15 54	S	<i>I. P. W.</i>	7 14 59.27	+1.48	60.75	S	<i>I. P. E.</i>	7 27 55.36	+0.90	56.26	12 55.51		
	2486	+16 5	S	<i>d</i>	15 10.61	+1.48	12.09	S	<i>d</i>	28 6.68	+0.90	7.58	55.49		
	2493	+27 10	N	<i>c + 0.2</i> <i>b + 2.6</i> <i>a + 1.8</i>	16 57.43	+1.49	58.92	N	<i>c - 2.3</i> <i>b - 1.2</i> <i>a - 35.4</i>	29 53.45	+1.06	54.51	55.59		
	2504	+35 19	N	<i>s</i>	19 6.70	+1.48	8.18	N	<i>s</i>	32 2.56	+1.20	3.76	55.58		
	2514	+24 30	S	<i>Q + 1.41</i>	20 22.43	+1.48	23.91	S	<i>Q + 1.14</i>	33 18.56	+1.01	19.57	55.66		
	2537	+13 46	S		23 32.93	+1.48	34.41	S		36 29.10	+0.88	29.98	55.57		
	2540	+26 4	N		25 13.32	+1.49	14.81	N		38 9.35	+1.04	10.39	55.58		
	2563	+33 43	N		28 12.28	+1.48	13.76	N		41 8.18	+1.17	9.35	55.59		
													12 55.571	+ 0.100	12 55.680
Jan. 7	2617	+27 5	N	<i>I. P. W.</i>	7 34 37.54	-1.33	36.21	N	<i>I. P. E.</i>	7 47 32.96	-1.23	31.73	12 55.52		
	2632	+20 13	S	<i>d</i>	37 7.59	-1.35	6.24	S	<i>d</i>	50 3.07	-1.33	1.74	55.50		
	2659	+17 38	S	<i>c + 0.2</i> <i>b + 2.6</i> <i>a + 1.8</i>	42 22.33	-1.35	20.98	S	<i>c - 2.3</i> <i>b - 1.2</i> <i>a - 35.4</i>	55 17.85	-1.36	16.49	55.51		
	2672	+28 8	N	<i>s</i>	44 37.18	-1.33	35.85	N	<i>s</i>	57 32.56	-1.21	31.35	55.50		
	2700	+22 59	S	<i>Q - 1.41</i>	47 39.69	-1.35	38.34	S	<i>Q - 1.14</i>	8 0 35.12	-1.29	33.83	55.49		
	2718	+27 50	N		49 57.42	-1.33	56.09	N		2 52.82	-1.21	51.61	55.52		
	2734	+32 50	N		52 35.70	-1.34	34.36	N		5 31.02	-1.13	29.89	55.53		
	2744	+18 1	S		53 47.27	-1.35	45.92	S		6 42.89	-1.36	41.53	55.61		
													12 55.523	+ 0.100	12 55.632
Jan. 9	2483	+15 54	S	<i>I. P. W.</i>	7 14 37.15	+1.48	38.63	S	<i>I. P. E.</i>	7 27 33.36	+0.96	34.32	12 55.69		
	2486	+16 5	S	<i>d</i>	14 48.49	+1.48	49.97	S	<i>d</i>	27 44.71	+0.96	45.67	55.70		
	2493	+27 10	N	<i>c + 4.0</i> <i>b - 0.8</i> <i>a - 1.0</i>	16 35.31	+1.49	36.80	N	<i>c - 2.4</i> <i>b + 2.2</i> <i>a - 38.0</i>	29 31.42	+1.15	32.57	55.77		
	2504	+35 19	N	<i>s</i>	18 44.55	+1.51	46.06	N	<i>s</i>	31 40.56	+1.29	41.85	55.79		
	2514	+24 30	S	<i>Q + 1.41</i>	20 0.27	+1.49	1.76	S	<i>Q + 1.14</i>	32 56.50	+1.09	57.59	55.83		
	2537	+13 46	S		23 10.87	+1.48	12.35	S		36 7.12	+0.93	8.05	55.70		
	2540	+26 4	N		24 51.22	+1.49	52.71	N		37 47.34	+1.13	48.47	55.76		
	2563	+33 43	N		27 50.08	+1.50	51.58	N		40 46.11	+1.27	47.38	55.80		
													12 55.755	+ 0.096	12 55.860

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heavinside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.014$ $H_N - H_S = + 0^{\circ}.032$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 9	2617	+ 27 5	N	<i>I. P. W.</i>	7 34 15.43	-1.33	14.10	N	<i>I. P. E.</i>	7 47 10.96	-1.14	9.82	12 55.72			
	2632	+ 20 13	S	<i>d</i>	36 45.42	-1.33	44.09	S	<i>d</i>	49 41.09	-1.25	39.84	55.75			
	2659	+ 17 38	S	<i>c + 4.0</i> <i>b - 0.8</i> <i>a - 1.0</i>	41 60.19	-1.33	58.86	S	<i>c - 2.4</i> <i>b + 2.2</i> <i>a - 38.0</i>	54 55.91	-1.29	54.62	55.76			
	2672	+ 28 8	N	<i>s</i>	44 15.02	-1.33	13.69	N	<i>s</i>	57 10.63	-1.12	9.51	55.82			
	2700	+ 22 59	S	<i>Q - 1.41</i>	47 17.55	-1.33	16.22	S	<i>Q - 1.14</i>	8 0 13.17	-1.21	11.96	55.74	<i>m s</i> 12 55.756	+ 0.096	+ 0.009
	2718	+ 27 50	N		49 35.32	-1.33	33.99	N		2 30.89	-1.12	29.77	55.78			
	2734	+ 32 50	N		52 13.61	-1.32	12.29	N		5 9.08	-1.03	8.05	55.76			
	2744	+ 18 1	S		53 25.23	-1.33	23.90	S		6 20.91	-1.29	19.62	55.72			12 55.861
Jan. 10	2483	+ 15 54	S	<i>I. P. W.</i>	7 14 26.82	+1.41	28.23	S	<i>I. P. E.</i>	7 27 23.05	+1.01	24.06	12 55.83			
	2486	+ 16 5	S	<i>d</i>	14 38.21	+1.42	39.63	S	<i>d</i>	27 34.41	+1.01	35.42	55.79			
	2493	+ 27 10	N	<i>c + 6.6</i> <i>b - 5.2</i> <i>a - 7.7</i>	16 24.92	+1.46	26.38	N	<i>c - 1.4</i> <i>b + 3.4</i> <i>a - 42.2</i>	29 21.05	+1.21	22.26	55.88			
	2504	+ 35 19	N	<i>s</i>	18 34.19	+1.49	35.68	N	<i>s</i>	31 30.16	+1.37	31.53	55.85			
	2514	+ 24 30	S	<i>Q + 1.41</i>	19 50.06	+1.45	51.51	S	<i>Q + 1.15</i>	32 46.16	+1.15	47.31	55.80	<i>m s</i> 12 55.853	+ 0.092	+ 0.009
	2537	+ 13 46	S		23 0.53	+1.41	1.94	S		35 56.83	+0.98	57.81	55.87			
	2549	+ 26 4	N		24 40.84	+1.46	42.30	N		37 37.00	+1.19	38.19	55.89			
	2563	+ 33 43	N		27 39.78	+1.49	41.27	N		40 35.84	+1.34	37.18	55.91			12 55.954
Jan. 10	2617	+ 27 5	N	<i>I. P. W.</i>	7 34 5.09	-1.36	3.73	N	<i>I. P. E.</i>	7 46 60.71	-1.10	59.61	12 55.88			
	2632	+ 20 13	S	<i>d</i>	36 35.18	-1.38	33.80	S	<i>d</i>	49 30.90	-1.21	29.69	55.89			
	2659	+ 17 38	S	<i>c + 6.6</i> <i>b - 5.2</i> <i>a - 7.7</i>	41 49.93	-1.39	48.54	S	<i>c - 1.4</i> <i>b + 3.4</i> <i>a - 42.2</i>	54 45.70	-1.26	44.44	55.90			
	2672	+ 28 8	N	<i>s</i>	44 4.73	-1.36	3.37	N	<i>s</i>	56 60.37	-1.07	59.30	55.93			
	2700	+ 22 59	S	<i>Q - 1.41</i>	47 7.30	-1.38	5.92	S	<i>Q - 1.15</i>	8 0 2.95	-1.17	1.78	55.86	<i>m s</i> 12 55.868	+ 0.092	+ 0.009
	2718	+ 27 50	N		49 25.04	-1.36	23.68	N		2 20.60	-1.08	19.52	55.84			
	2734	+ 32 50	N		52 3.32	-1.34	1.98	N		4 58.81	-0.98	57.83	55.85			
	2744	+ 18 1	S		53 14.96	-1.39	13.57	S		6 10.61	-1.25	9.36	55.79			12 55.969

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 39": AND JUBBULPORE (W) Lat. 23° 10', Long. 85° 19' 55".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$	$M_N$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 19	2409	+ 20 25	S	<i>I. P. W.</i>	7 30 2'75	+ 1'33	4'08	S	<i>I. P. W.</i>	7 31 58'71	+ 1'22	59'93	+ 1 55'85				
	2514	+ 24 30	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c + 2'3 \\ b - 3'8 \\ a - 35'6 \end{array}$	$\begin{array}{l} 31 57'78 \\ 31 57'73 \end{array}$	$\begin{array}{l} + 1'39 \\ + 1'39 \end{array}$	$\begin{array}{l} 59'17 \\ 59'12 \end{array}$	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c - 4'6 \\ b - 3'4 \\ a - 0'9 \end{array}$	$\begin{array}{l} 33 53'79 \\ 33 53'78 \end{array}$	$\begin{array}{l} + 1'21 \\ + 1'21 \end{array}$	$\begin{array}{l} 55'00 \\ 54'99 \end{array}$	$\begin{array}{l} 55'83 \\ 55'87 \end{array}$	$\begin{array}{l} m s \\ + 1 55'848 \end{array}$	$\begin{array}{l} + \\ + 0'297 \end{array}$	$\begin{array}{l} - \\ - 0'001 \end{array}$	$\begin{array}{l} + 1 56'144 \end{array}$
	2537	+ 13 46	S	<i>s</i>	35 8'30	+ 1'22	9'52	S	<i>s</i>	37 4'21	+ 1'22	5'43	55'91				
	2549	+ 26 4	N	$Q + 1'41$	36 48'59	+ 1'40	49'99	N	$Q + 1'41$	38 44'62	+ 1'20	45'82	55'83				
	2563	+ 33 43	N		39 47'38	+ 1'53	48'91	N		41 43'51	+ 1'20	44'71	55'80				
				Mean, $T_E$	7 34 17												
Jan. 19	2617	+ 27 5	N	<i>I. P. W.</i>	7 46 12'84	- 1'40	11'44	N	<i>I. P. W.</i>	7 48 8'70	- 1'62	7'08	+ 1 55'64				
	2632	+ 20 13	S	$\begin{array}{l} c + 2'3 \\ b - 3'8 \\ a - 35'6 \end{array}$	$\begin{array}{l} 48 42'95 \\ 51 43'82 \end{array}$	$\begin{array}{l} - 1'50 \\ - 1'56 \end{array}$	$\begin{array}{l} 41'45 \\ 42'26 \end{array}$	$\left\{ \begin{array}{l} S \\ S \end{array} \right.$	$\begin{array}{l} c - 4'6 \\ b - 3'4 \\ a - 0'9 \end{array}$	$\begin{array}{l} 50 38'68 \\ 53 39'46 \end{array}$	$\begin{array}{l} - 1'60 \\ - 1'60 \end{array}$	$\begin{array}{l} 37'08 \\ 37'86 \end{array}$	$\begin{array}{l} 55'63 \\ 55'60 \end{array}$	$\begin{array}{l} m s \\ + 1 55'563 \end{array}$	$\begin{array}{l} + \\ + 0'297 \end{array}$	$\begin{array}{l} - \\ - 0'001 \end{array}$	$\begin{array}{l} + 1 55'859 \end{array}$
	2649	+ 16 50	S	<i>s</i>	51 43'82	- 1'56	42'26	S	<i>s</i>	53 39'46	- 1'60	37'86	55'60				
	2659	+ 17 38	S	$Q - 1'41$	53 57'81	- 1'54	56'27	S	$Q - 1'41$	55 53'40	- 1'60	51'80	55'53				
	2672	+ 28 8	N		56 12'51	- 1'38	11'13	N		58 8'27	- 1'62	6'65	55'52				
	2700	+ 22 59	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		$\begin{array}{l} 59 15'09 \\ 59 15'13 \end{array}$	$\begin{array}{l} - 1'45 \\ - 1'45 \end{array}$	$\begin{array}{l} 13'64 \\ 13'68 \end{array}$	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		$\begin{array}{l} 8 1 10'79 \\ 1 10'82 \end{array}$	$\begin{array}{l} - 1'60 \\ - 1'60 \end{array}$	$\begin{array}{l} 9'19 \\ 9'22 \end{array}$	$\begin{array}{l} 55'55 \\ 55'54 \end{array}$				
	2718	+ 27 50	N		8 1 32'79	- 1'39	31'40	N		3 28'51	- 1'62	26'89	55'49				
				Mean, $T_E$	7 54 37												
Jan. 20	2519	+ 26 4	N	<i>I. P. W.</i>	7 36 44'02	+ 1'31	45'33	N	<i>I. P. W.</i>	7 38 24'80	+ 1'27	26'07	+ 1 40'74				
	2556	+ 20 36	S	$\begin{array}{l} c + 0'1 \\ b - 4'5 \\ a - 3'2 \end{array}$	$\begin{array}{l} 38 2'51 \\ 39 42'94 \end{array}$	$\begin{array}{l} + 1'31 \\ + 1'31 \end{array}$	$\begin{array}{l} 3'82 \\ 44'25 \end{array}$	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$	$\begin{array}{l} c - 2'2 \\ b - 3'4 \\ a - 0'4 \end{array}$	$\begin{array}{l} 39 43'29 \\ 41 23'74 \end{array}$	$\begin{array}{l} + 1'29 \\ + 1'27 \end{array}$	$\begin{array}{l} 44'58 \\ 25'01 \end{array}$	$\begin{array}{l} 40'76 \\ 40'76 \end{array}$	$\begin{array}{l} m s \\ + 1 40'772 \end{array}$	$\begin{array}{l} + \\ + 0'295 \end{array}$	$\begin{array}{l} - \\ - 0'001 \end{array}$	$\begin{array}{l} + 1 41'066 \end{array}$
	2563	+ 33 43	N	<i>s</i>	39 42'94	+ 1'31	44'25	N	<i>s</i>	41 23'74	+ 1'27	25'01	40'76				
	2578	+ 23 26	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c + 0'1 \\ b - 4'5 \\ a - 3'2 \end{array}$	$\begin{array}{l} 41 19'14 \\ 41 19'09 \end{array}$	$\begin{array}{l} + 1'31 \\ + 1'31 \end{array}$	$\begin{array}{l} 20'45 \\ 20'40 \end{array}$	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c + 1'42 \\ b - 3'4 \\ a - 0'4 \end{array}$	$\begin{array}{l} 42 59'95 \\ 42 59'95 \end{array}$	$\begin{array}{l} + 1'29 \\ + 1'29 \end{array}$	$\begin{array}{l} 61'24 \\ 61'24 \end{array}$	$\begin{array}{l} 40'79 \\ 40'84 \end{array}$				
	2586	+ 28 30	N		42 27'32	+ 1'32	28'64	N		44 8'11	+ 1'27	9'38	40'74				
				Mean, $T_E$	7 39 56												

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\frac{1}{144}$ , all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ ; AND JUBBULPORE (W) Lat. $25^{\circ} 10'$ , Long. $5^h 19^m 55^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 20	2632	+ 20 13	S	<i>I. P. W.</i>	7 48 38.26	-1.54	36.72	S	<i>I. P. W.</i>	7 50 18.92	-1.55	17.37	+ 1 40.65			
	2649	+ 16 50	S	$\begin{matrix} d \\ c + 0.1 \end{matrix}$	51 39.05	-1.54	37.51	S	$\begin{matrix} d \\ c - 2.2 \end{matrix}$	53 19.75	-1.55	18.20	40.69			
	2659	+ 17 38	S	$\begin{matrix} b - 4.5 \\ a - 3.2 \end{matrix}$	53 53.07	-1.54	51.53	S	$\begin{matrix} b - 3.4 \\ a - 0.4 \end{matrix}$	55 33.75	-1.55	32.20	40.67			
	2700	+ 22 59	$\begin{matrix} S \\ N \end{matrix}$	$\begin{matrix} s \\ Q - 1.42 \end{matrix}$	59 10.40	-1.53	8.87	S	$\begin{matrix} s \\ Q - 1.42 \end{matrix}$	8 0 51.07	-1.55	49.52	40.65			
					59 10.37	-1.53	8.84	N		0 51.09	-1.55	49.54	40.70			
	2718	+ 27 50	N		8 1 28.15	-1.52	26.63	N		3 8.70	-1.57	7.13	40.50			
	2734	+ 32 50	N		4 6.48	-1.53	4.95	N		5 47.02	-1.57	45.45	40.50			
	2744	+ 18 1	S		5 18.03	-1.54	16.49	S		6 58.60	-1.55	57.05	40.56			
				Mean, $T_E$	7 57 55											
Jan. 21	2499	+ 20 25	S	<i>I. P. W.</i>	7 29 53.49	+1.31	54.80	S	<i>I. P. W.</i>	7 31 19.53	+1.35	20.88	+ 1 26.08			
	2514	+ 24 30	$\begin{matrix} N \\ S \end{matrix}$	$\begin{matrix} d \\ c + 1.8 \\ b - 5.4 \\ a - 3.9 \end{matrix}$	31 48.57	+1.33	49.90	N	$\begin{matrix} d \\ c + 0.1 \\ b - 2.0 \\ a + 3.6 \end{matrix}$	33 14.65	+1.35	16.00	26.10			
					31 48.56	+1.33	49.89	S		33 14.64	+1.35	15.99	26.10			
	2537	+ 13 46	S	$\begin{matrix} s \\ Q + 1.41 \end{matrix}$	34 59.05	+1.31	60.36	S	$\begin{matrix} s \\ Q + 1.40 \end{matrix}$	36 24.99	+1.36	26.35	25.99			
	2549	+ 26 4	N		36 39.47	+1.32	40.79	N		38 5.39	+1.35	6.74	25.95			
	2556	+ 20 36	S		37 57.97	+1.30	59.27	S		39 23.91	+1.35	25.26	25.99			
	2563	+ 33 43	N		39 38.42	+1.34	39.76	N		41 4.39	+1.33	5.72	25.96			
	2578	+ 23 26	$\begin{matrix} N \\ S \end{matrix}$		41 14.67	+1.32	15.99	N		42 40.47	+1.35	41.82	25.83			
					41 14.62	+1.32	15.94	S		42 40.52	+1.35	41.87	25.93			
	2586	+ 28 30	N		42 22.82	+1.33	24.15	N		43 48.74	+1.34	50.08	25.93			
				Mean, $T_E$	7 36 46											
Jan. 21	2617	+ 27 5	N	<i>I. P. W.</i>	7 46 3.65	-1.49	2.16	N	<i>I. P. W.</i>	7 47 29.51	-1.46	28.05	+ 1 25.89			
	2632	+ 20 13	S	$\begin{matrix} d \\ c + 1.8 \\ b - 5.4 \\ a - 3.9 \end{matrix}$	48 33.74	-1.51	32.23	S	$\begin{matrix} d \\ c + 0.1 \\ b - 2.0 \\ a + 3.6 \end{matrix}$	49 59.54	-1.45	58.09	25.86			
	2649	+ 16 50	S		51 34.55	-1.51	33.04	S		52 60.40	-1.44	58.96	25.92			
	2659	+ 17 38	S	$\begin{matrix} s \\ Q - 1.41 \end{matrix}$	53 48.50	-1.51	46.99	S	$\begin{matrix} s \\ Q - 1.40 \end{matrix}$	55 14.33	-1.44	12.89	25.90			
	2672	+ 28 8	N		56 3.36	-1.49	1.87	N		57 29.20	-1.46	27.74	25.87			
	2700	+ 22 59	$\begin{matrix} S \\ N \end{matrix}$		59 5.89	-1.50	4.39	S		8 0 31.61	-1.45	30.16	25.77			
					59 5.89	-1.50	4.39	N		0 31.64	-1.45	30.19	25.80			
	2718	+ 27 50	N		8 1 23.68	-1.49	22.19	N		2 49.34	-1.46	47.88	25.69			
	2734	+ 32 50	N		4 2.01	-1.48	0.53	N		5 27.72	-1.47	26.25	25.72			
	2744	+ 18 1	S		5 13.58	-1.51	12.07	S		6 39.21	-1.44	37.77	25.70			
				Mean, $T_E$	7 56 29											

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 89": AND JUBBULPORE (W) Lat. 23° 10', Long. 85° 19' 58".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Peral. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .029 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .027	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 24	2490	+ 20 25	S	<i>I. P. E.</i>	7 29 38 <sup>.16</sup>	+ 1 <sup>.22</sup>	39 <sup>.38</sup>	S	<i>I. P. E.</i>	7 30 21 <sup>.76</sup>	+ 1 <sup>.46</sup>	23 <sup>.22</sup>	+ 0 43 <sup>.84</sup>				
	2514	+ 24 30	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c - 2.7 \\ b - 3.5 \\ a - 13.1 \end{array}$	31 33 <sup>.24</sup>	+ 1 <sup>.22</sup>	34 <sup>.46</sup>	N	$\begin{array}{l} c - 1.6 \\ b + 4.2 \\ a - 1.4 \end{array}$	32 16 <sup>.89</sup>	+ 1 <sup>.46</sup>	18 <sup>.35</sup>	43 <sup>.89</sup>				
	2537	+ 13 46	S	$\begin{array}{l} s \\ Q + 1.38 \end{array}$	34 43 <sup>.72</sup>	+ 1 <sup>.19</sup>	44 <sup>.91</sup>	S	$\begin{array}{l} s \\ Q + 1.40 \end{array}$	35 27 <sup>.18</sup>	+ 1 <sup>.45</sup>	28 <sup>.63</sup>	43 <sup>.72</sup>				
	2549	+ 26 4	N		36 24 <sup>.20</sup>	+ 1 <sup>.23</sup>	25 <sup>.43</sup>	N		37 7 <sup>.63</sup>	+ 1 <sup>.47</sup>	9 <sup>.10</sup>	43 <sup>.67</sup>	<i>m s</i>	+ 0 43 <sup>.724</sup>	+ 0 <sup>.294</sup>	
	2556	+ 20 36	S		37 42 <sup>.71</sup>	+ 1 <sup>.18</sup>	43 <sup>.89</sup>	S		38 26 <sup>.11</sup>	+ 1 <sup>.46</sup>	27 <sup>.57</sup>	43 <sup>.68</sup>				
	2563	+ 33 43	N		39 23 <sup>.13</sup>	+ 1 <sup>.28</sup>	24 <sup>.41</sup>	N		40 6 <sup>.58</sup>	+ 1 <sup>.48</sup>	8 <sup>.06</sup>	43 <sup>.65</sup>				
	2578	+ 23 26	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$		40 59 <sup>.33</sup>	+ 1 <sup>.23</sup>	60 <sup>.56</sup>	N		41 42 <sup>.79</sup>	+ 1 <sup>.46</sup>	44 <sup>.25</sup>	43 <sup>.69</sup>				
			S		40 59 <sup>.34</sup>	+ 1 <sup>.23</sup>	60 <sup>.57</sup>	S		41 42 <sup>.77</sup>	+ 1 <sup>.46</sup>	44 <sup>.23</sup>	43 <sup>.66</sup>				
	2586	+ 28 30	N		42 7 <sup>.52</sup>	+ 1 <sup>.25</sup>	8 <sup>.77</sup>	N		42 51 <sup>.01</sup>	+ 1 <sup>.47</sup>	52 <sup>.48</sup>	43 <sup>.71</sup>				+ 0 44 <sup>.017</sup>
				Mean, T <sub>E</sub>	7 36 30												
Jan. 24	2617	+ 27 5	N	<i>I. P. E.</i>	7 45 48 <sup>.37</sup>	- 1 <sup>.52</sup>	46 <sup>.85</sup>	N	<i>I. P. E.</i>	7 46 31 <sup>.77</sup>	- 1 <sup>.33</sup>	30 <sup>.44</sup>	+ 0 43 <sup>.59</sup>				
	2632	+ 20 13	S	$\begin{array}{l} c - 2.7 \\ b - 3.5 \\ a - 13.1 \end{array}$	48 18 <sup>.39</sup>	- 1 <sup>.54</sup>	16 <sup>.85</sup>	S	$\begin{array}{l} c - 1.6 \\ b + 4.2 \\ a - 1.4 \end{array}$	49 1 <sup>.81</sup>	- 1 <sup>.34</sup>	0 <sup>.47</sup>	43 <sup>.62</sup>				
	2649	+ 16 50	S	$\begin{array}{l} s \\ Q - 1.38 \end{array}$	51 19 <sup>.25</sup>	- 1 <sup>.56</sup>	17 <sup>.69</sup>	S	$\begin{array}{l} s \\ Q - 1.40 \end{array}$	52 2 <sup>.61</sup>	- 1 <sup>.34</sup>	1 <sup>.27</sup>	43 <sup>.58</sup>				
	2659	+ 17 38	S		53 33 <sup>.24</sup>	- 1 <sup>.56</sup>	31 <sup>.68</sup>	S		54 16 <sup>.55</sup>	- 1 <sup>.34</sup>	15 <sup>.21</sup>	43 <sup>.53</sup>				
	2672	+ 28 8	N		55 48 <sup>.12</sup>	- 1 <sup>.52</sup>	46 <sup>.60</sup>	N		56 31 <sup>.37</sup>	- 1 <sup>.33</sup>	30 <sup>.04</sup>	43 <sup>.44</sup>	<i>m s</i>	+ 0 43 <sup>.475</sup>	+ 0 <sup>.294</sup>	
	2700	+ 22 59	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		58 50 <sup>.63</sup>	- 1 <sup>.54</sup>	49 <sup>.09</sup>	S		59 33 <sup>.90</sup>	- 1 <sup>.34</sup>	32 <sup>.56</sup>	43 <sup>.47</sup>				
			N		58 50 <sup>.64</sup>	- 1 <sup>.54</sup>	49 <sup>.10</sup>	N		59 33 <sup>.90</sup>	- 1 <sup>.34</sup>	32 <sup>.56</sup>	43 <sup>.46</sup>				
	2718	+ 27 50	N		8 1 8 <sup>.38</sup>	- 1 <sup>.52</sup>	6 <sup>.86</sup>	N		8 1 51 <sup>.60</sup>	- 1 <sup>.33</sup>	50 <sup>.27</sup>	43 <sup>.41</sup>				
	2734	+ 32 50	N		3 46 <sup>.72</sup>	- 1 <sup>.49</sup>	45 <sup>.23</sup>	N		4 29 <sup>.90</sup>	- 1 <sup>.32</sup>	28 <sup>.58</sup>	43 <sup>.35</sup>				
	2744	+ 18 1	S		4 58 <sup>.32</sup>	- 1 <sup>.55</sup>	56 <sup>.77</sup>	S		5 41 <sup>.41</sup>	- 1 <sup>.34</sup>	40 <sup>.07</sup>	43 <sup>.30</sup>				+ 0 43 <sup>.768</sup>
				Mean, T <sub>E</sub>	7 56 14												

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\#12$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 39": AND JUBBULPORE (W) Lat. 23° 10', Long. 85° 19' 58".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0°.029 H <sub>N</sub> - H <sub>S</sub> = + 0°.027	M <sub>N</sub>
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			h m s	s	s			h m s	s	s	m s				
Jan. 25	2514	+ 24 30	N	I. P. E.	7 31 28.49	+ 1.06	29.55	N	I. P. E.	7 31 57.03	+ 1.44	58.47	+ 0 28.92				
			S	d	31 28.45	+ 1.06	29.51	S	d	31 57.00	+ 1.44	58.44	28.93				
	2537	+ 13 46	S	c - 5.9 b - 6.9 a - 20.0	34 39.04	+ 0.99	40.03	S	c - 2.1 b + 3.1 a - 4.3	35 7.43	+ 1.41	8.84	28.81				
	2549	+ 26 4	N	s	36 19.35	+ 1.07	20.42	N	s	36 47.81	+ 1.45	49.26	28.84				
	2556	+ 20 36	S	Q + 1.37	37 37.90	+ 0.97	38.87	S	Q + 1.41	38 6.37	+ 1.43	7.80	28.93				
	2563	+ 33 43	N		39 18.30	+ 1.12	19.42	N		39 46.69	+ 1.45	48.14	28.72				
	2578	+ 23 26	N		40 54.58	+ 1.05	55.63	N		41 22.98	+ 1.44	24.42	28.79				
			S		40 54.50	+ 1.05	55.55	S		41 22.94	+ 1.44	24.38	28.83				
	2586	+ 28 30	N		42 2.77	+ 1.08	3.85	N		42 31.11	+ 1.45	32.56	28.71				
				Mean, T <sub>E</sub>	7 37 11												
Jan. 25	2617	+ 27 5	N	I. P. E.	7 45 43.60	- 1.66	41.94	N	I. P. E.	7 46 11.92	- 1.37	10.55	+ 0 28.61				
	2632	+ 20 13	S	d	48 13.66	- 1.70	11.96	S	d	48 41.91	- 1.40	40.51	28.55				
	2649	+ 16 50	S	c - 5.9 b - 6.9 a - 20.0	51 14.52	- 1.73	12.79	S	c - 2.1 b + 3.1 a - 4.3	51 42.72	- 1.40	41.32	28.53				
	2659	+ 17 38	S	s	53 28.49	- 1.72	26.77	S	s	53 56.68	- 1.40	55.28	28.51				
	2672	+ 28 8	N	Q - 1.37	55 43.27	- 1.66	41.61	N	Q - 1.41	56 11.52	- 1.37	10.15	28.54				
			S		58 45.84	- 1.69	44.15	S		59 14.02	- 1.38	12.64	28.49				
	2700	+ 22 59	N		58 45.90	- 1.69	44.21	N		59 14.03	- 1.38	12.65	28.44				
	2718	+ 27 50	N		8 1 3.57	- 1.66	1.91	N		8 1 31.74	- 1.37	30.37	28.46				
	2734	+ 32 50	N		3 41.84	- 1.63	40.21	N		4 10.02	- 1.37	8.65	28.44				
	2744	+ 18 1	S		4 53.56	- 1.72	51.84	S		5 21.63	- 1.40	20.23	28.39				
				Mean, T <sub>E</sub>	7 56 10												

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation #4, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $85^{\circ} 19' 58''$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $S_N - S_S = + 0.029$ $H_N - H_S = + 0.027$	$M_N$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 26	2490	+ 20 25	S	<i>I. P. E.</i>	7 29 28.63	+ 0.95	29.58	S	<i>I. P. E.</i>	7 29 41.48	+ 1.52	43.00	+ 0 13.42				
	2514	+ 24 30	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c - 7.8 \\ b - 9.5 \\ a - 22.8 \end{array}$	$\begin{array}{l} 31 23.72 \\ 31 23.65 \end{array}$	$\begin{array}{l} + 0.97 \\ + 0.97 \end{array}$	$\begin{array}{l} 24.69 \\ 24.62 \end{array}$	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$	$\begin{array}{l} c - 0.6 \\ b + 5.4 \\ a - 1.6 \end{array}$	$\begin{array}{l} 31 36.56 \\ 31 36.50 \end{array}$	$\begin{array}{l} + 1.51 \\ + 1.51 \end{array}$	$\begin{array}{l} 38.07 \\ 38.01 \end{array}$	$\begin{array}{l} 13.38 \\ 13.39 \end{array}$				
	2537	+ 13 46	S	<i>s</i>	34 34.18	+ 0.90	35.08	S	<i>s</i>	34 46.89	+ 1.50	48.39	13.31				
	2540	+ 26 4	N	$Q + 1.39$	36 14.56	+ 0.97	15.53	N	$Q + 1.40$	36 27.33	+ 1.52	28.85	13.32				
	2550	+ 20 36	S		37 33.12	+ 0.87	33.99	S		37 45.81	+ 1.52	47.33	13.34				
	2563	+ 33 43	N		39 13.47	+ 1.03	14.50	N		39 26.22	+ 1.53	27.75	13.25				
	2578	+ 23 26	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$		$\begin{array}{l} 40 49.79 \\ 40 49.70 \end{array}$	$\begin{array}{l} + 0.96 \\ + 0.96 \end{array}$	$\begin{array}{l} 50.75 \\ 50.66 \end{array}$	$\left\{ \begin{array}{l} N \\ S \end{array} \right.$		$\begin{array}{l} 41 2.47 \\ 41 2.48 \end{array}$	$\begin{array}{l} + 1.52 \\ + 1.52 \end{array}$	$\begin{array}{l} 3.99 \\ 4.00 \end{array}$	$\begin{array}{l} 13.24 \\ 13.34 \end{array}$				
	2586	+ 28 30	N		41 57.99	+ 1.00	58.99	N		42 10.71	+ 1.52	12.23	13.24				
				Mean, $T_E$	7 36 21												
Jan. 26	2617	+ 27 5	N	<i>I. P. E.</i>	7 45 38.85	- 1.80	37.05	N	<i>I. P. E.</i>	7 45 51.44	- 1.28	50.16	+ 0 13.11				
	2632	+ 20 13	S	<i>d</i>	48 8.92	- 1.85	7.07	S	<i>d</i>	48 21.48	- 1.28	20.20	13.13				
	2649	+ 16 50	S	$\begin{array}{l} c - 7.8 \\ b - 9.5 \\ a - 22.8 \end{array}$	$\begin{array}{l} 51 9.71 \\ 51 9.71 \end{array}$	$\begin{array}{l} - 1.86 \\ - 1.86 \end{array}$	$\begin{array}{l} 7.85 \\ 7.85 \end{array}$	$\left\{ \begin{array}{l} S \\ S \end{array} \right.$	$\begin{array}{l} c - 0.6 \\ b + 5.4 \\ a - 1.6 \end{array}$	$\begin{array}{l} 51 22.25 \\ 51 22.25 \end{array}$	$\begin{array}{l} - 1.28 \\ - 1.28 \end{array}$	$\begin{array}{l} 20.97 \\ 20.97 \end{array}$	$\begin{array}{l} 13.12 \\ 13.12 \end{array}$				
	2659	+ 17 38	S	<i>s</i>	53 23.72	- 1.86	21.86	S	<i>s</i>	53 36.24	- 1.28	34.96	13.10				
	2672	+ 28 8	N	$Q - 1.39$	55 38.51	- 1.79	36.72	N	$Q - 1.40$	55 51.06	- 1.28	49.78	13.06				
	2700	+ 22 59	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		$\begin{array}{l} 58 41.07 \\ 58 41.07 \end{array}$	$\begin{array}{l} - 1.82 \\ - 1.82 \end{array}$	$\begin{array}{l} 39.25 \\ 39.25 \end{array}$	$\left\{ \begin{array}{l} S \\ N \end{array} \right.$		$\begin{array}{l} 58 53.61 \\ 58 53.63 \end{array}$	$\begin{array}{l} - 1.28 \\ - 1.28 \end{array}$	$\begin{array}{l} 52.33 \\ 52.35 \end{array}$	$\begin{array}{l} 13.08 \\ 13.10 \end{array}$				
	2718	+ 27 50	N		8 0 58.86	- 1.79	57.07	N		8 1 11.28	- 1.28	10.00	12.93				
	2734	+ 32 50	N		3 37.15	- 1.76	35.39	N		3 49.59	- 1.27	48.32	12.93				
	2744	+ 18 1	S		4 48.78	- 1.86	46.92	S		4 61.14	- 1.28	59.86	12.94				
				Mean, $T_E$	7 56 5												

NOTE.  $1^s = 0.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> ; AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$	$\delta L_N - \rho$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 19	2082	+ 30 34	N	<i>I. P. W.</i>	6 20 52.90	+ 1.48	54.38	N	<i>I. P. W.</i>	6 42 33.70	+ 1.20	34.90	21 40.52				
	2097	+ 28 17	N	<i>c + 2.3</i> <i>d</i>	22 49.11	+ 1.44	50.55	N	<i>c - 4.6</i> <i>d</i>	44 29.85	+ 1.20	31.05	40.50				
	2110	+ 32 32	N	<i>b - 3.8</i> <i>a - 35.6</i>	24 39.02	+ 1.51	40.53	N	<i>b - 3.4</i> <i>a - 0.9</i>	46 19.89	+ 1.20	21.09	40.56				
	2129	+ 14 15	S	<i>s</i>	26 47.84	+ 1.23	49.07	S	<i>s</i>	48 28.44	+ 1.22	29.66	40.59				
	2140	+ 16 18	S	<i>Q + 1.41</i>	27 59.28	+ 1.26	60.54	S	<i>Q + 1.41</i>	49 39.92	+ 1.22	41.14	40.60				
	2154	+ 24 42	N		30 6.98	+ 1.39	8.37	N		51 47.75	+ 1.21	48.96	40.59				
			S		30 6.94	+ 1.39	8.33	S		51 47.73	+ 1.21	48.94	40.61				
	2173	+ 19 46	S		32 57.57	+ 1.32	58.89	S		54 38.26	+ 1.22	39.48	40.59				
	2184	+ 16 31	S		34 27.18	+ 1.26	28.44	S		56 7.82	+ 1.22	9.04	40.60				
Jan. 19	2239	+ 38 35	N	<i>I. P. W.</i>	6 45 4.52	- 1.20	3.32	N	<i>I. P. W.</i>	7 6 45.56	- 1.62	43.94	21 40.62				
	2241	+ 38 39	N	<i>c + 2.3</i> <i>d</i>	45 48.37	- 1.20	47.17	N	<i>c - 4.6</i> <i>d</i>	7 29.44	- 1.62	27.82	40.65				
	2255	+ 13 20	S	<i>b - 3.8</i> <i>a - 35.6</i>	47 55.73	- 1.60	54.13	S	<i>b - 3.4</i> <i>a - 0.9</i>	9 36.38	- 1.60	34.78	40.65				
	2275	+ 26 14	N	<i>s</i>	51 27.52	- 1.42	26.10	N	<i>s</i>	13 8.42	- 1.62	6.80	40.70				
	2285	+ 16 15	S	<i>Q - 1.41</i>	53 25.38	- 1.56	23.82	S	<i>Q - 1.41</i>	15 6.09	- 1.60	4.49	40.67				
	2301	+ 29 33	N		55 56.97	- 1.36	55.61	N		17 37.88	- 1.62	36.26	40.65				
	2313	+ 22 49	N		58 8.67	- 1.46	7.21	N		19 49.47	- 1.60	47.87	40.66				
			S		58 8.57	- 1.46	7.11	S		19 49.41	- 1.60	47.81	40.70				
Jan. 20	2173	+ 19 46	S	<i>I. P. W.</i>	6 32 52.90	+ 1.30	54.20	S	<i>I. P. W.</i>	6 54 33.49	+ 1.29	34.78	21 40.58				
	2184	+ 16 31	S	<i>c + 0.1</i> <i>d</i> <i>b - 4.5</i> <i>a - 3.2</i> <i>s</i> <i>Q + 1.42</i>	34 22.43	+ 1.31	23.74	S	<i>c - 2.2</i> <i>d</i> <i>b - 3.4</i> <i>a - 0.4</i> <i>s</i> <i>Q + 1.42</i>	56 3.06	+ 1.29	4.35	40.61				

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *not*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 39": AND JUBBULPORE (W) Lat. 23° 10', Long. 85° 19' 58".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $S_N - S_S = + 0.029$ $H_N - H_S = + 0.027$	$\delta I_N - P$
			By Strahan, with Telescope No. 2					By Heaviside, with Telescope No. 1									
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 20	2239	+38 35	N	<i>I. P. W.</i>	6 44 60.19	-1.53	58.66	N	<i>I. P. W.</i>	7 6 40.91	-1.57	39.34	21 40.68				
	2241	+38 39	N	<i>d</i>	45 44.09	-1.53	42.56	N	<i>d</i>	7 24.74	-1.57	23.17	40.61				
	2255	+13 20	S	<i>c + 0.1</i> <i>b - 4.5</i> <i>a - 3.2</i>	47 50.95	-1.53	49.42	S	<i>c - 2.2</i> <i>b - 3.4</i> <i>a - 0.4</i>	9 31.62	-1.55	30.07	40.65				
	2265	+17 53	S	<i>s</i>	49 16.53	-1.54	14.99	S	<i>s</i>	10 57.18	-1.55	55.63	40.64				
	2275	+26 14	N	<i>Q - 1.42</i>	51 23.03	-1.53	21.50	N	<i>Q - 1.42</i>	13 3.66	-1.57	2.09	40.59				
	2285	+16 15	S		53 20.70	-1.54	19.16	S		14 61.33	-1.55	59.78	40.62	<i>m s</i> 21 40.642	+ 0.070		
	2301	+29 33	N		55 52.51	-1.53	50.98	N		17 33.14	-1.57	31.57	40.59				
	2313	+22 49	{ N S		58 4.02 58 3.95	-1.53 -1.53	2.49 2.42	{ N S		19 44.72 19 44.69	-1.55 -1.55	43.17 43.14	40.68 40.72			21 40.711	
Jan. 21	2082	+30 34	N	<i>I. P. W.</i>	6 20 43.75	+1.33	45.08	N	<i>I. P. W.</i>	6 42 24.51	+1.34	25.85	21 40.77				
	2097	+28 17	N	<i>d</i>	22 39.96	+1.33	41.29	N	<i>d</i>	44 20.69	+1.34	22.03	40.74				
	2110	+32 32	N	<i>c + 1.8</i> <i>b - 5.4</i> <i>a - 3.9</i>	24 30.02	+1.34	31.36	N	<i>c + 0.1</i> <i>b - 2.0</i> <i>a + 3.6</i>	46 10.67	+1.33	12.00	40.64				
	2129	+14 15	S	<i>s</i>	26 38.49	+1.32	39.81	S	<i>s</i>	48 19.17	+1.36	20.53	40.72				
	2140	+16 18	S	<i>Q + 1.41</i>	27 49.95	+1.31	51.26	S	<i>Q + 1.40</i>	49 30.64	+1.36	32.00	40.74	<i>m s</i> 21 40.720	+ 0.072		
	2154	+24 42	{ N S		29 57.76 29 57.77	+1.33 +1.33	59.09 59.10	{ N S		51 38.53 51 38.45	+1.35 +1.35	39.88 39.80	40.79 40.70			21 40.791	
	2173	+19 46	S		32 48.29	+1.32	49.61	S		54 28.95	+1.36	30.31	40.70				
	2184	+16 31	S		34 17.87	+1.31	19.18	S		55 58.52	+1.36	59.88	40.70				
Jan. 21	2239	+38 35	N	<i>I. P. W.</i>	6 44 55.67	-1.48	54.19	N	<i>I. P. W.</i>	7 6 36.28	-1.49	34.79	21 40.60				
	2241	+38 39	N	<i>d</i>	45 39.46	-1.48	37.98	N	<i>d</i>	7 20.12	-1.49	18.63	40.65				
	2255	+13 20	S	<i>c + 1.8</i> <i>b - 5.4</i> <i>a - 3.9</i>	47 46.37	-1.51	44.86	S	<i>c + 0.1</i> <i>b - 2.0</i> <i>a + 3.6</i>	9 27.03	-1.44	25.59	40.73				
	2265	+17 53	S	<i>s</i>	49 11.96	-1.51	10.45	S	<i>s</i>	10 52.60	-1.44	51.16	40.71				
	2275	+26 14	N	<i>Q - 1.41</i>	51 18.36	-1.50	16.86	N	<i>Q - 1.40</i>	12 59.10	-1.46	57.64	40.78	<i>m s</i> 21 40.721	+ 0.072		
	2285	+16 15	S		53 16.08	-1.51	14.57	S		14 56.78	-1.44	55.34	40.77				
	2301	+29 33	N		55 47.91	-1.49	46.42	N		17 28.60	-1.46	27.14	40.72				
	2313	+22 49	{ N S		57 59.45 57 59.38	-1.50 -1.50	57.95 57.88	{ N S		19 40.11 19 40.15	-1.45 -1.45	38.66 38.70	40.71 40.82			21 40.792	

NOTE.  $1^d = 0.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $85^{\circ} 19' 55''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 24	2082	+30 34	N	<i>I. P. E.</i>	6 20 28.26	+1.26	29.52	N	<i>I. P. E.</i>	6 42 8.95	+1.47	10.42	21 40.90			
	2097	+28 17	N	<i>c - 2.7</i> <i>d</i>	22 24.49	+1.25	25.74	N	<i>c - 1.6</i> <i>d</i>	44 5.12	+1.47	6.59	40.85			
	2110	+32 32	N	<i>b - 3.5</i> <i>a - 13.1</i>	24 14.53	+1.27	15.80	N	<i>b + 4.2</i> <i>a - 1.4</i>	45 55.14	+1.48	56.62	40.82			
	2129	+14 15	S	<i>s</i>	26 23.12	+1.19	24.31	S	<i>s</i>	48 3.64	+1.45	5.09	40.78			
	2140	+16 18	S	<i>Q + 1.38</i>	27 34.60	+1.20	35.80	S	<i>Q + 1.40</i>	49 15.11	+1.46	16.57	40.77	<i>m s</i> 21 40.797	+ 0.076	
	2154	+24 42	{	N	29 42.40	+1.22	43.62	N		51 22.91	+1.46	24.37	40.75	<i>m s</i> 21 40.797	+	0.001
					29 42.36	+1.22	43.58	S		51 22.87	+1.46	24.33	40.75			
	2173	+19 46	S		32 32.95	+1.22	34.17	S		54 13.42	+1.46	14.88	40.71			
	2184	+16 31	S		34 2.46	+1.20	3.66	S		55 43.04	+1.46	44.50	40.84			
Jan. 24	2239	+38 35	N	<i>I. P. E.</i>	6 44 40.14	-1.46	38.68	N	<i>I. P. E.</i>	7 6 20.78	-1.32	19.46	21 40.78			
	2241	+38 39	N	<i>c - 2.7</i> <i>d</i>	45 24.00	-1.46	22.54	N	<i>c - 1.6</i> <i>d</i>	7 4.58	-1.32	3.26	40.72			
	2255	+13 20	S	<i>b - 3.5</i> <i>a - 13.1</i>	47 31.04	-1.58	29.46	S	<i>b + 4.2</i> <i>a - 1.4</i>	9 11.48	-1.35	10.13	40.67			
	2265	+17 53	S	<i>s</i>	48 56.64	-1.55	55.09	S	<i>s</i>	10 37.09	-1.34	35.75	40.66			
	2275	+26 14	N	<i>Q - 1.38</i>	51 3.05	-1.53	1.52	N	<i>Q - 1.40</i>	12 43.55	-1.33	42.22	40.70	<i>m s</i> 21 40.701	+ 0.076	
	2285	+16 15	S		52 60.78	-1.56	59.22	S		14 41.26	-1.34	39.92	40.70	<i>m s</i> 21 40.701	+	0.001
	2301	+29 33	N		55 32.51	-1.51	31.00	N		17 13.01	-1.33	11.68	40.68			
	2313	+22 49	{	N	57 44.12	-1.54	42.58	N		19 24.59	-1.34	23.25	40.67	<i>m s</i> 21 40.701	+	0.001
					57 44.06	-1.54	42.52	S		19 24.59	-1.34	23.25	40.73			
Jan. 25	2082	+30 34	N	<i>I. P. E.</i>	6 20 23.50	+1.10	24.60	N	<i>I. P. E.</i>	6 42 3.96	+1.45	5.41	21 40.81			
	2097	+28 17	N	<i>c - 5.9</i> <i>d</i>	22 19.68	+1.08	20.76	N	<i>c - 2.1</i> <i>d</i>	44 0.17	+1.45	1.62	40.86			
	2110	+32 32	N	<i>b - 6.9</i> <i>a - 20.0</i>	24 9.69	+1.11	10.80	N	<i>b + 3.1</i> <i>a - 4.3</i>	45 50.15	+1.45	51.60	40.80			
	2129	+14 15	S	<i>s</i>	26 18.36	+0.99	19.35	S	<i>s</i>	47 58.71	+1.41	60.12	40.77			
	2140	+16 18	S	<i>Q + 1.37</i>	27 29.84	+1.01	30.85	S	<i>Q + 1.41</i>	49 10.18	+1.42	11.60	40.75	<i>m s</i> 21 40.782	+ 0.074	
	2154	+24 42	{	N	29 37.56	+1.06	38.62	N		51 17.95	+1.44	19.39	40.77	<i>m s</i> 21 40.782	+	0.001
					29 37.53	+1.06	38.59	S		51 17.97	+1.44	19.41	40.82			
	2173	+19 46	S		32 28.11	+1.03	29.14	S		54 8.46	+1.42	9.88	40.74			
	2184	+16 31	S		33 57.72	+1.01	58.73	S		55 38.03	+1.42	39.45	40.72			

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 6 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persn. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .029 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .027	δL <sub>N</sub> - ρ
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 25	2239	+ 38 35	N	<i>I. P. E.</i>	6 44 35 <sup>s</sup> .31	-1 <sup>s</sup> .58	33 <sup>s</sup> .73	N	<i>I. P. E.</i>	7 6 15 <sup>s</sup> .77	-1 <sup>s</sup> .35	14 <sup>s</sup> .42	21 40 <sup>s</sup> .69				
	2241	+ 38 39	N	<i>d</i>	45 19 <sup>s</sup> .21	-1 <sup>s</sup> .58	17 <sup>s</sup> .63	N	<i>d</i>	6 59 <sup>s</sup> .71	-1 <sup>s</sup> .35	58 <sup>s</sup> .36	40 <sup>s</sup> .73				
	2255	+ 13 20	S	<i>c</i> - 5 <sup>s</sup> .9 <i>b</i> - 6 <sup>s</sup> .9 <i>a</i> - 20 <sup>s</sup> .0	47 26 <sup>s</sup> .26	-1 <sup>s</sup> .75	24 <sup>s</sup> .51	S	<i>c</i> - 2 <sup>s</sup> .1 <i>b</i> + 3 <sup>s</sup> .1 <i>a</i> - 4 <sup>s</sup> .3	9 6 <sup>s</sup> .64	-1 <sup>s</sup> .41	5 <sup>s</sup> .23	40 <sup>s</sup> .72				
	2265	+ 17 53	S	<i>s</i>	48 51 <sup>s</sup> .84	-1 <sup>s</sup> .72	50 <sup>s</sup> .12	S	<i>s</i>	10 32 <sup>s</sup> .23	-1 <sup>s</sup> .40	30 <sup>s</sup> .83	40 <sup>s</sup> .71				
	2275	+ 26 14	N	<i>Q</i> - 1 <sup>s</sup> .37	50 58 <sup>s</sup> .17	-1 <sup>s</sup> .67	56 <sup>s</sup> .50	N	<i>Q</i> - 1 <sup>s</sup> .41	12 38 <sup>s</sup> .62	-1 <sup>s</sup> .37	37 <sup>s</sup> .25	40 <sup>s</sup> .75				
	2285	+ 16 15	S		52 55 <sup>s</sup> .95	-1 <sup>s</sup> .73	54 <sup>s</sup> .22	S		14 36 <sup>s</sup> .38	-1 <sup>s</sup> .40	34 <sup>s</sup> .98	40 <sup>s</sup> .76				
	2301	+ 29 33	N		55 27 <sup>s</sup> .66	-1 <sup>s</sup> .65	26 <sup>s</sup> .01	N		17 8 <sup>s</sup> .16	-1 <sup>s</sup> .37	6 <sup>s</sup> .79	40 <sup>s</sup> .78				
	2313	+ 22 49	N		57 39 <sup>s</sup> .26	-1 <sup>s</sup> .69	37 <sup>s</sup> .57	N		19 19 <sup>s</sup> .70	-1 <sup>s</sup> .38	18 <sup>s</sup> .32	40 <sup>s</sup> .75				
			S		57 39 <sup>s</sup> .25	-1 <sup>s</sup> .69	37 <sup>s</sup> .56	S		19 19 <sup>s</sup> .65	-1 <sup>s</sup> .38	18 <sup>s</sup> .27	40 <sup>s</sup> .71				
Jan. 26	2082	+ 30 34	N	<i>I. P. E.</i>	6 20 18 <sup>s</sup> .61	+1 <sup>s</sup> .01	19 <sup>s</sup> .62	N	<i>I. P. E.</i>	6 41 59 <sup>s</sup> .18	+1 <sup>s</sup> .53	60 <sup>s</sup> .71	21 41 <sup>s</sup> .09				
	2097	+ 28 17	N	<i>d</i>	22 14 <sup>s</sup> .81	+1 <sup>s</sup> .00	15 <sup>s</sup> .81	N	<i>d</i>	43 55 <sup>s</sup> .40	+1 <sup>s</sup> .52	56 <sup>s</sup> .92	41 <sup>s</sup> .11				
	2110	+ 32 32	N	<i>c</i> - 7 <sup>s</sup> .8 <i>b</i> - 9 <sup>s</sup> .5 <i>a</i> - 22 <sup>s</sup> .8	24 4 <sup>s</sup> .79	+1 <sup>s</sup> .02	5 <sup>s</sup> .81	N	<i>c</i> - 0 <sup>s</sup> .6 <i>b</i> + 5 <sup>s</sup> .4 <i>a</i> - 1 <sup>s</sup> .6	45 45 <sup>s</sup> .35	+1 <sup>s</sup> .53	46 <sup>s</sup> .88	41 <sup>s</sup> .07				
	2129	+ 14 15	S	<i>s</i>	26 13 <sup>s</sup> .45	+0 <sup>s</sup> .90	14 <sup>s</sup> .35	S	<i>s</i>	47 53 <sup>s</sup> .92	+1 <sup>s</sup> .51	55 <sup>s</sup> .43	41 <sup>s</sup> .08				
	2140	+ 16 18	S	<i>Q</i> + 1 <sup>s</sup> .39	27 24 <sup>s</sup> .99	+0 <sup>s</sup> .92	25 <sup>s</sup> .91	S	<i>Q</i> + 1 <sup>s</sup> .40	49 5 <sup>s</sup> .44	+1 <sup>s</sup> .52	6 <sup>s</sup> .96	41 <sup>s</sup> .05				
	2154	+ 24 42	N		29 32 <sup>s</sup> .75	+0 <sup>s</sup> .97	33 <sup>s</sup> .72	N		51 13 <sup>s</sup> .24	+1 <sup>s</sup> .51	14 <sup>s</sup> .75	41 <sup>s</sup> .03				
			S		29 32 <sup>s</sup> .66	+0 <sup>s</sup> .97	33 <sup>s</sup> .63	S		51 13 <sup>s</sup> .17	+1 <sup>s</sup> .51	14 <sup>s</sup> .68	41 <sup>s</sup> .05				
	2184	+ 16 31	S		33 52 <sup>s</sup> .83	+0 <sup>s</sup> .92	53 <sup>s</sup> .75	S		55 33 <sup>s</sup> .35	+1 <sup>s</sup> .52	34 <sup>s</sup> .87	41 <sup>s</sup> .12				
Jan. 26	2239	+ 38 35	N	<i>I. P. E.</i>	6 44 30 <sup>s</sup> .51	-1 <sup>s</sup> .72	28 <sup>s</sup> .79	N	<i>I. P. E.</i>	7 6 10 <sup>s</sup> .98	-1 <sup>s</sup> .26	9 <sup>s</sup> .72	21 40 <sup>s</sup> .93				
	2241	+ 38 39	N	<i>d</i>	45 14 <sup>s</sup> .33	-1 <sup>s</sup> .72	12 <sup>s</sup> .61	N	<i>d</i>	6 54 <sup>s</sup> .90	-1 <sup>s</sup> .26	53 <sup>s</sup> .64	41 <sup>s</sup> .03				
	2265	+ 17 53	S	<i>c</i> - 7 <sup>s</sup> .8 <i>b</i> - 9 <sup>s</sup> .5 <i>a</i> - 22 <sup>s</sup> .8	48 47 <sup>s</sup> .02	-1 <sup>s</sup> .86	45 <sup>s</sup> .16	S	<i>c</i> - 0 <sup>s</sup> .6 <i>b</i> + 5 <sup>s</sup> .4 <i>a</i> - 1 <sup>s</sup> .6	10 27 <sup>s</sup> .41	-1 <sup>s</sup> .28	26 <sup>s</sup> .13	40 <sup>s</sup> .97				
	2275	+ 26 14	N	<i>s</i>	50 53 <sup>s</sup> .42	-1 <sup>s</sup> .81	51 <sup>s</sup> .61	N	<i>s</i>	12 33 <sup>s</sup> .80	-1 <sup>s</sup> .28	32 <sup>s</sup> .52	40 <sup>s</sup> .91				
	2285	+ 16 15	S	<i>Q</i> - 1 <sup>s</sup> .39	52 51 <sup>s</sup> .18	-1 <sup>s</sup> .86	49 <sup>s</sup> .32	S	<i>Q</i> - 1 <sup>s</sup> .40	14 31 <sup>s</sup> .53	-1 <sup>s</sup> .28	30 <sup>s</sup> .25	40 <sup>s</sup> .93				
	2301	+ 29 33	N		55 22 <sup>s</sup> .93	-1 <sup>s</sup> .78	21 <sup>s</sup> .15	N		17 3 <sup>s</sup> .26	-1 <sup>s</sup> .28	1 <sup>s</sup> .98	40 <sup>s</sup> .83				
	2313	+ 22 49	N		57 34 <sup>s</sup> .46	-1 <sup>s</sup> .82	32 <sup>s</sup> .64	N		19 14 <sup>s</sup> .87	-1 <sup>s</sup> .28	13 <sup>s</sup> .59	40 <sup>s</sup> .95				
			S		57 34 <sup>s</sup> .48	-1 <sup>s</sup> .82	32 <sup>s</sup> .66	S		19 14 <sup>s</sup> .84	-1 <sup>s</sup> .28	13 <sup>s</sup> .56	40 <sup>s</sup> .90				

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$
	B. A. C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882		$0^{\circ}$			$h\ m\ s$	$s$	$s$			$h\ m\ s$	$s$	$s$	$m\ s$			
Jan. 19	2937	$+ 21\ 54$	N S	$I. P. W.$	8 16 35.19	$+ 1^{\circ}.35$	36.54	N	$I. P. W.$	8 38 15.94	$+ 1^{\circ}.22$	17.16	21 40.62			
				$d$				S	$d$							
				$c + 2^{\circ}.3$	16 35.15	$+ 1^{\circ}.35$	36.50	S	$c - 4^{\circ}.6$	38 15.92	$+ 1^{\circ}.22$	17.14	40.64			
	2958	$+ 10\ 31$	S	$b - 3^{\circ}.8$	18 28.40	$+ 1^{\circ}.19$	29.59	S	$b - 3^{\circ}.4$	40 9.04	$+ 1^{\circ}.22$	10.26	40.67			
				$a - 35^{\circ}.6$					$a - 0^{\circ}.9$							
	2970	$+ 12\ 33$	S	$s$	20 35.57	$+ 1^{\circ}.21$	36.78	S	$s$	42 16.24	$+ 1^{\circ}.22$	17.46	40.68			
				$Q + 1^{\circ}.41$					$Q + 1^{\circ}.41$							
	2984	$+ 33\ 44$	N		23 19.95	$+ 1^{\circ}.53$	21.48	N		45 0.97	$+ 1^{\circ}.20$	2.17	40.69			
Jan. 19	2999	$+ 32\ 55$	N		25 24.71	$+ 1^{\circ}.52$	26.23	N		47 5.69	$+ 1^{\circ}.20$	6.89	40.66			
	3017	$+ 20\ 25$	S		27 17.80	$+ 1^{\circ}.33$	19.13	S		48 58.61	$+ 1^{\circ}.22$	59.83	40.70			
	3033	$+ 33\ 22$	N		29 47.05	$+ 1^{\circ}.53$	48.58	N		51 28.15	$+ 1^{\circ}.20$	29.35	40.77			
	3056	$+ 32\ 53$	N		32 25.21	$+ 1^{\circ}.52$	26.73	N		54 6.24	$+ 1^{\circ}.20$	7.44	40.71			
Jan. 19	3107	$+ 15\ 41$	S	$I. P. W.$	8 40 22.98	$- 1^{\circ}.57$	21.41	S	$I. P. W.$	9 2 3.58	$- 1^{\circ}.60$	1.98	21 40.57			
				$d$				S	$d$							
	3117	$+ 22\ 31$	S N	$c + 2^{\circ}.3$	42 44.55	$- 1^{\circ}.46$	43.09	S	$c - 4^{\circ}.6$	4 25.36	$- 1^{\circ}.60$	23.76	40.67			
				$b - 3^{\circ}.8$				N	$b - 3^{\circ}.4$							
				$a - 35^{\circ}.6$	42 44.56	$- 1^{\circ}.46$	43.10	N	$a - 0^{\circ}.9$	4 25.39	$- 1^{\circ}.60$	23.79	40.69			
	3129	$+ 18\ 32$	S	$s$	45 29.28	$- 1^{\circ}.52$	27.76	S	$s$	7 10.04	$- 1^{\circ}.60$	8.44	40.68			
				$Q - 1^{\circ}.41$					$Q - 1^{\circ}.41$							
	3138	$+ 21\ 47$	S		47 2 88	$- 1^{\circ}.47$	1.41	S		8 43.72	$- 1^{\circ}.60$	42.12	40.71			
Jan. 20	3147	$+ 15\ 26$	S		48 52.98	$- 1^{\circ}.57$	51.41	S		10 33.68	$- 1^{\circ}.60$	32.08	40.67			
	3170	$+ 26\ 45$	N		52 31.24	$- 1^{\circ}.41$	29.83	N		14 12.17	$- 1^{\circ}.62$	10.55	40.72			
	3183	$+ 25\ 40$	N		54 28.76	$- 1^{\circ}.42$	27.34	N		16 9.60	$- 1^{\circ}.61$	7.99	40.65			
	3194	$+ 25\ 41$	N		56 51.93	$- 1^{\circ}.42$	50.51	N		18 32.83	$- 1^{\circ}.61$	31.22	40.71			
Jan. 20	2958	$+ 10\ 31$	S	$I. P. W.$	8 18 8.55	$+ 1^{\circ}.30$	9.85	S	$I. P. W.$	8 39 49.23	$+ 1^{\circ}.29$	50.52	21 40.67			
				$d$				S	$d$							
	2970	$+ 12\ 33$	S	$c + 0^{\circ}.1$	20 15.75	$+ 1^{\circ}.31$	17.06	S	$c - 2^{\circ}.2$	41 56.32	$+ 1^{\circ}.29$	57.61	40.55			
				$b - 4^{\circ}.5$				N	$b - 3^{\circ}.4$							
	2984	$+ 33\ 44$	N	$a - 3^{\circ}.2$	23 0.43	$+ 1^{\circ}.31$	1.94	N	$a - 0^{\circ}.4$	44 41.19	$+ 1^{\circ}.27$	42.46	40.72			
	2999	$+ 32\ 55$	N	$s$	25 5.23	$+ 1^{\circ}.31$	6.54	N	$s$	46 46.02	$+ 1^{\circ}.27$	47.29	40.75			
				$Q + 1^{\circ}.42$					$Q + 1^{\circ}.42$							
	3017	$+ 20\ 25$	S		26 58.09	$+ 1^{\circ}.31$	59.40	S		48 38.88	$+ 1^{\circ}.29$	40.17	40.77			
Jan. 20	3033	$+ 33\ 22$	N		29 27.63	$+ 1^{\circ}.31$	28.94	N		51 8.47	$+ 1^{\circ}.27$	9.74	40.80			
	3056	$+ 32\ 53$	N		32 5.77	$+ 1^{\circ}.31$	7.08	N		53 46.51	$+ 1^{\circ}.27$	47.78	40.70			
	3079	$+ 24\ 55$	N S		35 38.02	$+ 1^{\circ}.31$	39.33	N		57 18.83	$+ 1^{\circ}.28$	20.11	40.78			
					35 38.01	$+ 1^{\circ}.31$	39.32	S		57 18.83	$+ 1^{\circ}.28$	20.11	40.79			

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation  $\pi L$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $85^{\circ} 19' 58''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heavyside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ}.029$ $H_N - H_S = + 0^{\circ}.027$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 20	3117	$+ 22^{\circ} 31'$	{ S N	<i>I. P. W.</i> <i>d</i> $c + 0^{\circ}.1$ $b - 4^{\circ}.5$ $a - 3^{\circ}.2$	8 42 24.89	-1.53	23.36	{ S N	<i>I. P. W.</i> <i>d</i> $c - 2^{\circ}.2$ $b - 3^{\circ}.4$ $a - 0^{\circ}.4$	9 4 5.60	-1.55	4.05	21 40.69			
					42 24.85	-1.53	23.32			4 5.63	-1.55	4.08	40.76			
	3129	$+ 18^{\circ} 32'$	S	<i>s</i>	45 9.53	-1.54	7.99	S	<i>s</i>	6 50.24	-1.55	48.69	40.70			
	3138	$+ 21^{\circ} 47'$	S	<i>s</i>	46 43.22	-1.53	41.69	S	<i>s</i>	8 23.95	-1.55	22.40	40.71			
	3147	$+ 15^{\circ} 26'$	S	<i>Q - 1^{\circ}.42</i>	48 33.19	-1.53	31.66	S	<i>Q - 1^{\circ}.42</i>	10 13.86	-1.55	12.31	40.65			
	3170	$+ 26^{\circ} 45'$	N		52 11.67	-1.53	10.14	N		13 52.40	-1.57	50.83	40.69			
	3183	$+ 25^{\circ} 40'$	N		54 9.06	-1.53	7.53	N		15 49.83	-1.56	48.27	40.74			
	3194	$+ 25^{\circ} 41'$	N		56 32.34	-1.53	30.81	N		18 13.03	-1.56	11.47	40.66			
Jan. 21	2958	$+ 10^{\circ} 31'$	S	<i>I. P. W.</i>	8 17 49.28	+1.31	50.59	S	<i>I. P. W.</i>	8 39 29.91	+1.38	31.29	21 40.70			
	2970	$+ 12^{\circ} 33'$	S	<i>d</i> $c + 1^{\circ}.8$	19 56.33	+1.31	57.64	S	<i>d</i> $c + 0^{\circ}.1$	41 37.14	+1.37	38.51	40.87			
	2984	$+ 33^{\circ} 44'$	N	<i>b - 5^{\circ}.4</i> $a - 3^{\circ}.9$	22 41.03	+1.34	42.37	N	<i>b - 2^{\circ}.0</i> $a + 3^{\circ}.6$	44 21.90	+1.33	23.23	40.86			
	2999	$+ 32^{\circ} 55'$	N	<i>s</i>	24 45.86	+1.34	47.20	N	<i>s</i>	46 26.68	+1.33	28.01	40.81			
	3017	$+ 20^{\circ} 25'$	S	<i>Q + 1^{\circ}.41</i>	26 38.71	+1.31	40.02	S	<i>Q + 1^{\circ}.40</i>	48 19.51	+1.35	20.86	40.84			
	3033	$+ 33^{\circ} 22'$	N		29 8.23	+1.34	9.57	N		50 49.04	+1.33	50.37	40.80			
	3056	$+ 32^{\circ} 53'$	N		31 46.36	+1.34	47.70	N		53 27.16	+1.33	28.49	40.79			
	3079	$+ 24^{\circ} 55'$	{ N S		35 18.70	+1.33	20.03	{ N S		56 59.48	+1.35	60.83	40.80			
					35 18.69	+1.33	20.02			56 59.42	+1.35	60.77	40.75			
Jan. 21	3117	$+ 22^{\circ} 31'$	{ S N	<i>I. P. W.</i> <i>d</i> $c + 1^{\circ}.8$ $b - 5^{\circ}.4$ $a - 3^{\circ}.9$	8 42 5.49	-1.50	3.99	{ S N	<i>I. P. W.</i> <i>d</i> $c + 0^{\circ}.1$ $b - 2^{\circ}.0$ $a + 3^{\circ}.6$	9 3 46.14	-1.45	44.69	21 40.70			
					42 5.46	-1.50	3.96			3 46.22	-1.45	44.77	40.81			
	3129	$+ 18^{\circ} 32'$	S	<i>s</i>	44 50.16	-1.51	48.65	S	<i>s</i>	6 30.89	-1.44	29.45	40.80			
	3138	$+ 21^{\circ} 47'$	S	<i>s</i>	46 23.80	-1.50	22.30	S	<i>s</i>	8 4.51	-1.45	3.06	40.76			
	3147	$+ 15^{\circ} 26'$	S	<i>Q - 1^{\circ}.41</i>	48 13.83	-1.50	12.33	S	<i>Q - 1^{\circ}.40</i>	9 54.47	-1.44	53.03	40.70			
	3170	$+ 26^{\circ} 45'$	N		51 52.29	-1.50	50.79	N		13 33.03	-1.46	31.57	40.78			
	3183	$+ 25^{\circ} 40'$	N		53 49.76	-1.49	48.27	N		15 30.42	-1.45	28.97	40.70			
	3194	$+ 25^{\circ} 41'$	N		56 12.96	-1.49	11.47	N		17 53.64	-1.45	52.19	40.72			

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGHI (E) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^s.029$ $H_N - H_S = + 0^s.027$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 24	2958	+10 31	S	<i>I. P. E.</i>	8 16 51.91	+1.17	53.08	S	<i>I. P. E.</i>	8 38 32.24	+1.44	33.68	21 40.60				
	2970	+12 33	S	<i>c = 2.7</i> <i>d</i>	18 59.00	+1.18	60.18	S	<i>c = 1.6</i> <i>d</i>	40 39.39	+1.44	40.83	40.65				
	2984	+33 44	N	<i>b = 3.5</i> <i>a = 13.1</i>	21 43.67	+1.28	44.95	N	<i>b = 4.2</i> <i>a = 1.4</i>	43 24.16	+1.48	25.64	40.69				
	2999	+32 55	N	<i>s</i> <i>Q + 1.38</i>	23 48.42	+1.28	49.70	N	<i>s</i> <i>Q + 1.40</i>	45 28.92	+1.48	30.40	40.70				
	3017	+20 25	S		25 41.37	+1.22	42.59	S		47 21.80	+1.46	23.26	40.67				
	3033	+33 22	N		28 10.91	+1.28	12.19	N		49 51.36	+1.48	52.84	40.65				
	3056	+32 53	N		30 49.01	+1.27	50.28	N		52 29.47	+1.48	30.95	40.67				
	3079	+24 55	{ N S		34 21.36 34 21.32	+1.23 +1.23	22.59 22.55	{ N S		56 1.77 56 1.72	+1.46 +1.46	3.23 3.18	40.64 40.63				
Jan. 24	3117	+22 31	{ S N	<i>I. P. E.</i> <i>c = 2.7</i> <i>d</i>	8 41 8.06 41 8.08	-1.54 -1.54	6.52 6.54	{ S N	<i>I. P. E.</i> <i>c = 1.6</i> <i>d</i>	9 2 48.51 2 48.52	-1.34 -1.34	47.17 47.18	21 40.65 40.64				
	3129	+18 32	S	<i>b = 3.5</i> <i>a = 13.1</i>	43 52.77	-1.55	51.22	S	<i>b = 4.2</i> <i>a = 1.4</i>	5 33.19	-1.34	31.85	40.63				
	3138	+21 47	S	<i>s</i> <i>Q - 1.38</i>	45 26.37	-1.53	24.84	S	<i>s</i> <i>Q - 1.40</i>	7 6.82	-1.34	5.48	40.64				
	3147	+15 26	S		47 16.43	-1.56	14.87	S		8 56.80	-1.34	55.46	40.59				
	3170	+26 45	N		50 54.88	-1.52	53.36	N		12 35.27	-1.33	33.94	40.58				
	3183	+25 40	N		52 52.31	-1.53	50.78	N		14 32.69	-1.34	31.35	40.57				
	3194	+25 41	N		55 15.56	-1.53	14.03	N		16 55.97	-1.34	54.63	40.60				
Jan. 25	2958	+10 31	S	<i>I. P. E.</i>	8 16 32.14	+0.97	33.11	S	<i>I. P. E.</i>	8 38 12.34	+1.41	13.75	21 40.64				
	2970	+12 33	S	<i>c = 5.9</i> <i>d</i>	18 39.30	+0.98	40.28	S	<i>c = 2.1</i> <i>d</i>	40 19.50	+1.41	20.91	40.63				
	2984	+33 44	N	<i>b = 6.9</i> <i>a = 20.0</i>	21 23.85	+1.12	24.97	N	<i>b = 3.1</i> <i>a = 4.3</i>	43 4.24	+1.45	5.69	40.72				
	2999	+32 55	N	<i>s</i> <i>Q + 1.37</i>	23 28.68	+1.11	29.79	N	<i>s</i> <i>Q + 1.41</i>	45 9.05	+1.45	10.50	40.71				
	3017	+20 25	S		25 21.60	+1.04	22.64	S		47 1.85	+1.42	3.27	40.63				
	3038	+33 22	N		27 51.13	+1.12	52.25	N		49 31.47	+1.45	32.92	40.67				
	3056	+32 53	N		30 29.22	+1.11	30.33	N		52 9.55	+1.45	11.00	40.67				
	3079	+24 55	{ N S		34 1.61 34 1.56	+1.06 +1.06	2.67 2.62	{ N S		55 41.89 55 41.84	+1.44 +1.44	43.33 43.28	40.66 40.66				

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

HAZARIBAGH (E) Lat. 24° 0', Long. 85° 41' 39": AND JUBBULPORE (W) Lat. 23° 10', Long. 85° 19' 58".																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0.029$ $H_N - H_S = + 0.027$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>		<i>I. P. E.</i>	<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 25	3117	+ 22 31	{ S	<i>I. P. E.</i>	8 40 48.33	-1.69	46.64	S	<i>I. P. E.</i>	9 2 28.69	-1.38	27.31	21 40.67			
			{ N	<i>d</i>	40 48.36	-1.69	46.67	N	<i>d</i>	2 28.70	-1.38	27.32	40.65			
	3129	+ 18 32	S	<i>c</i> - 5.9 <i>b</i> - 6.9 <i>a</i> - 20.0	43 32.97	-1.72	31.25	S	<i>c</i> - 2.1 <i>b</i> + 3.1 <i>a</i> - 4.3	5 13.32	-1.40	11.92	40.67			
	3138	+ 21 47	S	<i>s</i>	45 6.64	-1.70	4.94	S	<i>s</i>	6 46.96	-1.38	45.58	40.64			
	3147	+ 15 26	S	<i>Q</i> - 1.37	46 56.72	-1.74	54.98	S	<i>Q</i> - 1.41	8 36.98	-1.40	35.58	40.60			
	3170	+ 26 45	N		50 35.18	-1.67	33.51	N		12 15.46	-1.37	14.09	40.58			
	3183	+ 25 40	N		52 32.60	-1.68	30.92	N		14 12.92	-1.38	11.54	40.62			
	3194	+ 25 41	N		54 55.83	-1.68	54.15	N		16 36.11	-1.38	34.73	40.58			
Jan. 26	2958	+ 10 31	S	<i>I. P. E.</i>	8 16 11.65	+0.88	12.53	S	<i>I. P. E.</i>	8 37 51.85	+1.50	53.35	21 40.82			
	2970	+ 12 33	S	<i>d</i>	18 18.77	+0.90	19.67	S	<i>d</i>	39 59.03	+1.50	60.53	40.86			
	2984	+ 33 44	N	<i>c</i> - 7.8 <i>b</i> - 9.5 <i>a</i> - 22.8	21 3.43	+1.03	4.46	N	<i>c</i> - 0.6 <i>b</i> + 5.4 <i>a</i> - 1.6	42 43.75	+1.53	45.28	40.82			
	2999	+ 32 55	N	<i>s</i>	23 8.25	+1.03	9.28	N	<i>s</i>	44 48.51	+1.53	50.04	40.76			
	3017	+ 20 25	S	<i>Q</i> + 1.39	25 1.14	+0.94	2.08	S	<i>Q</i> + 1.40	46 41.38	+1.52	42.90	40.82			
	3033	+ 33 22	N		27 30.67	+1.03	31.70	N		49 10.97	+1.53	12.50	40.80			
	3056	+ 32 53	N		30 8.72	+1.02	9.74	N		51 49.02	+1.53	50.55	40.81			
	3079	+ 24 55	{ N		33 41.05	+0.96	42.01	N		55 21.37	+1.51	22.88	40.87			
Jan. 26	3117	+ 22 31	{ S	<i>I. P. E.</i>	8 40 27.87	-1.82	26.05	S	<i>I. P. E.</i>	9 2 8.16	-1.28	6.88	21 40.83			
			{ N	<i>d</i>	40 27.92	-1.82	26.10	N	<i>d</i>	2 8.14	-1.28	6.86	40.76			
	3129	+ 18 32	S	<i>c</i> - 7.8 <i>b</i> - 9.5 <i>a</i> - 22.8	43 12.62	-1.86	10.76	S	<i>c</i> - 0.6 <i>b</i> + 5.4 <i>a</i> - 1.6	4 52.77	-1.28	51.49	40.73			
	3138	+ 21 47	S	<i>s</i>	44 46.20	-1.83	44.37	S	<i>s</i>	6 26.36	-1.28	25.08	40.71			
	3147	+ 15 26	S	<i>Q</i> - 1.39	46 36.24	-1.87	34.37	S	<i>Q</i> - 1.40	8 16.41	-1.29	15.12	40.75			
	3170	+ 26 45	N		50 14.63	-1.80	12.83	N		11 54.84	-1.28	53.56	40.73			
	3183	+ 25 40	N		52 12.11	-1.80	10.31	N		13 52.30	-1.28	51.02	40.71			
	3194	+ 25 41	N		54 35.34	-1.80	33.54	N		16 15.54	-1.28	14.26	40.72			

NOTE. 1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5h 53m 36s; AND HAZARIBAGH (W) Lat. 24° 0', Long. 5h 41m 39s.																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 8	3079	+ 24 55	N	<i>I. P. W.</i>	9 0 18.39	+ 1.50	19.89	N	<i>I. P. E.</i>	8 56 2.02	+ 1.38	3.40	- 4 16.49			
	3093	+ 25 5	N	<i>d</i>	2 25.82	+ 1.50	27.32	N	<i>d</i>	58 9.46	+ 1.38	10.84	16.48			
	3107	+ 15 41	S	<i>c - 2.6</i> <i>b + 3.6</i> <i>a + 2.0</i>	4 40.80	+ 1.51	42.31	S	<i>c - 1.3</i> <i>b 0.0</i> <i>a - 22.7</i>	9 0 24.46	+ 1.29	25.75	16.56			
	3117	+ 22 31	S	<i>s</i>	7 2.41	+ 1.51	3.92	S	<i>s</i>	2 46.06	+ 1.36	47.42	16.50			
	3129	+ 18 32	S	<i>Q + 1.48</i>	9 47.08	+ 1.31	48.59	S	<i>Q + 1.40</i>	5 30.91	+ 1.32	32.23	16.36	<i>m s</i>		
	3138	+ 21 46	S		11 20.76	+ 1.51	22.27	S		7 4.53	+ 1.35	5.88	16.39	- 4 16.434	+ 0.050	
	3162	+ 37 18	N		15 58.10	+ 1.50	59.60	N		11 41.80	+ 1.51	43.31	16.29			
	3170	+ 26 45	N		16 49.29	+ 1.50	50.79	N		12 32.99	+ 1.40	34.39	16.40			
				Mean, $T_E$	9 8.33											
Feb. 8	3206	+ 20 18	S	<i>I. P. W.</i>	9 22 37.50	- 1.46	36.04	S	<i>I. P. E.</i>	9 18 21.26	- 1.47	19.79	- 4 16.25			
	3209	+ 17 6	S	<i>d</i>	23 30.76	- 1.46	29.30	S	<i>d</i>	19 14.71	- 1.50	13.21	16.09			
	3227	+ 9 34	S	<i>c - 2.6</i> <i>b + 3.6</i> <i>a + 2.0</i>	26 38.72	- 1.45	37.27	S	<i>c - 1.3</i> <i>b 0.0</i> <i>a - 22.7</i>	22 22.67	- 1.56	21.11	16.16			
	3238	+ 34 10	N	<i>s</i>	28 6.10	- 1.46	4.64	N	<i>s</i>	23 49.76	- 1.33	48.43	16.21			
	3246	+ 23 29	N	<i>Q - 1.48</i>	29 29.80	- 1.45	28.35	N	<i>Q - 1.40</i>	25 13.65	- 1.43	12.22	16.13	<i>m s</i>		
	3261	+ 36 55	N		31 30.40	- 1.46	28.94	N		27 14.03	- 1.30	12.73	16.21	- 4 16.164	+ 0.050	
	3268	+ 36 21	N		33 5.59	- 1.46	4.13	N		28 49.29	- 1.30	47.99	16.14			
	3278	+ 16 58	S		35 2.37	- 1.46	0.91	S		30 46.29	- 1.50	44.79	16.12			
				Mean, $T_E$	9 28.45											
Feb. 9	3079	+ 24 55	N	<i>I. P. W.</i>	9 0 2.66	+ 1.60	4.26	N	<i>I. P. E.</i>	8 55 55.97	+ 1.30	57.27	- 4 6.99			
	3093	+ 25 5	N	<i>d</i>	2 10.17	+ 1.60	11.77	N	<i>d</i>	58 3.35	+ 1.30	4.65	7.12			
	3117	+ 15 41	S	<i>c - 1.5</i> <i>b + 6.6</i> <i>a + 3.8</i>	6 46.71	+ 1.60	48.31	S	<i>c - 2.1</i> <i>b - 2.4</i> <i>a - 30.2</i>	9 2 40.09	+ 1.27	41.36	6.95			
	3129	+ 18 32	S	<i>s</i>	9 31.35	+ 1.61	32.96	S	<i>s</i>	5 24.80	+ 1.22	26.02	6.94			
	3138	+ 21 46	S	<i>Q + 1.48</i>	11 4.97	+ 1.60	6.57	S	<i>Q + 1.40</i>	6 58.41	+ 1.26	59.67	6.90	<i>m s</i>		
	3162	+ 37 18	N		15 42.43	+ 1.59	44.02	N		11 35.67	+ 1.47	37.14	6.88	- 4 6.963	+ 0.051	
				Mean, $T_E$	9 7.33											

NOTE. 1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *all*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND HAZARIBAGH (W) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .021 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .029	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 9	3206	+ 20 18	S	<i>I. P. W.</i>	9 22 21.82	-1.36	20.46	N	<i>I. P. E.</i>	9 18 15.16	-1.56	13.60	-4 6.86				
	3200	+ 17 6	S	<i>d</i>	23 15.23	-1.36	13.87	S	<i>d</i>	19 8.66	-1.60	7.06	6.81				
	3227	+ 9 34	S	<i>c</i> - 1.5 <i>b</i> + 6.6 <i>a</i> + 3.8	26 23.20	-1.34	21.86	S	<i>c</i> - 2.1 <i>b</i> - 2.4 <i>a</i> - 30.2	22 16.62	-1.67	14.95	6.91				
	3238	+ 34 10	N	<i>s</i>	27 50.57	-1.36	49.21	N	<i>s</i>	23 43.60	-1.38	42.22	6.99				
	3246	+ 23 29	N	<i>Q</i> - 1.48	29 14.34	-1.36	12.98	N	<i>Q</i> - 1.40	25 7.38	-1.52	6.06	6.92	<i>m s</i> -4 6.890	+	0.051	
	3268	+ 36 21	N		32 50.10	-1.37	48.73	N		28 43.17	-1.35	41.82	6.91			+	0.003
	3278	+ 16 58	N		34 46.81	-1.35	45.46	S		30 40.23	-1.60	38.63	6.83				-4 6.836
				Mean, T <sub>E</sub>	9 28 6												
Feb. 10	3079	+ 24 55	N	<i>I. P. W.</i>	8 59 47.14	+1.55	48.69	N	<i>I. P. E.</i>	8 55 49.86	+1.25	51.11	-3 57.58				
	3093	+ 25 5	N	<i>d</i>	9 154.54	+1.55	56.09	N	<i>d</i>	57 57.24	+1.25	58.49	57.60				
	3107	+ 15 41	S	<i>c</i> - 2.7 <i>b</i> + 5.9 <i>a</i> - 1.4	4 9.41	+1.55	10.96	S	<i>c</i> - 3.5 <i>b</i> - 3.0 <i>a</i> - 31.6	9 0 12.27	+1.14	13.41	57.55				
	3117	+ 22 31	S	<i>s</i>	6 31.17	+1.55	32.72	S	<i>s</i>	2 33.89	+1.23	35.12	57.60				
	3129	+ 18 32	S	<i>Q</i> + 1.47	9 15.86	+1.55	17.41	S	<i>Q</i> + 1.40	5 18.67	+1.18	19.85	57.56	<i>m s</i> -3 57.559	+	0.049	
	3138	+ 21 46	S		10 49.55	+1.55	51.10	S		6 52.26	+1.22	53.48	57.62			+	0.004
	3162	+ 37 18	N		15 26.82	+1.56	28.38	N		11 29.48	+1.43	30.91	57.47				
	3170	+ 26 45	N		16 18.00	+1.55	19.55	N		12 20.79	+1.27	22.06	57.49				-3 57.506
				Mean, T <sub>E</sub>	9 8 2												
Feb. 10	3206	+ 20 18	S	<i>I. P. W.</i>	9 22 6.27	-1.39	4.88	S	<i>I. P. E.</i>	9 18 9.06	-1.60	7.46	-3 57.42				
	3200	+ 17 6	S	<i>d</i>	22 59.69	-1.39	58.30	S	<i>d</i>	19 2.53	-1.64	0.89	57.41				
	3227	+ 9 34	S	<i>c</i> - 2.7 <i>b</i> + 5.9 <i>a</i> - 1.4	26 7.56	-1.41	6.15	S	<i>c</i> - 3.5 <i>b</i> - 3.0 <i>a</i> - 31.6	22 10.47	-1.73	8.74	57.41				
	3238	+ 34 10	N	<i>s</i>	27 34.80	-1.37	33.43	N	<i>s</i>	23 37.50	-1.42	36.08	57.35				
	3246	+ 23 29	N	<i>Q</i> - 1.47	28 58.64	-1.39	57.25	N	<i>Q</i> - 1.40	24 61.49	-1.56	59.93	57.32	<i>m s</i> -3 57.360	+	0.049	
	3261	+ 36 55	N		30 59.08	-1.38	57.70	N		27 1.81	-1.38	0.43	57.27			+	0.004
	3268	+ 36 21	N		32 34.35	-1.38	32.97	N		28 37.03	-1.39	35.64	57.33				
	3278	+ 16 58	S		34 31.25	-1.39	29.86	S		30 34.13	-1.64	32.49	57.37				-3 57.307
				Mean, T <sub>E</sub>	9 28 14												

NOTE.  $1^s = 0^{\circ}.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 13	3079	+24 55	N	<i>I. P. E.</i>	8 59 4.12	+1.50	5.62	N	<i>I. P. W.</i>	8 55 32.53	+1.36	33.89	-3 31.73			
	3093	+25 5	N	<i>c - 0.6</i> <i>b + 1.7</i> <i>a + 5.1</i>	9 11 1.50	+1.50	13.00	N	<i>d</i> <i>c - 1.5</i> <i>b - 0.8</i> <i>a - 43.3</i>	57 40.04	+1.36	41.40	31.60			
	3107	+15 41	S	<i>s</i>	3 26.40	+1.53	27.93	S	<i>s</i>	59 55.03	+1.20	56.23	31.70			
	3117	+22 31	S	<i>Q + 1.49</i>	5 48.15	+1.52	49.67	S	<i>s</i>	9 2 16.65	+1.31	17.96	31.71			
	3129	+18 32	S		8 32.85	+1.53	34.38	S	<i>Q + 1.40</i>	5 1.44	+1.24	2.68	31.70	<i>m s</i> -3 31.679	+ 0.042	+ 0.005
	3138	+21 46	S		10 6.46	+1.52	7.98	S		6 35.06	+1.30	36.36	31.62			
	3162	+37 18	N		14 43.90	+1.48	45.38	N		11 12.07	+1.62	13.69	31.69			
				Mean, $T_E$	9 6 8											-3 31.632
Feb. 13	3206	+20 18	S	<i>I. P. E.</i>	9 21 23.31	-1.46	21.85	S	<i>I. P. W.</i>	9 17 51.80	-1.53	50.27	-3 31.58			
	3209	+17 6	S	<i>c - 0.6</i> <i>b + 1.7</i> <i>a + 5.1</i>	22 16.75	-1.45	15.30	S	<i>d</i> <i>c - 1.5</i> <i>b - 0.8</i> <i>a - 43.3</i>	18 45.27	-1.59	43.68	31.62			
	3227	+9 34	S	<i>s</i>	25 24.65	-1.43	23.22	S	<i>s</i>	21 53.29	-1.70	51.59	31.63			
	3238	+34 10	N	<i>Q - 1.49</i>	26 51.96	-1.49	50.47	N	<i>Q - 1.40</i>	23 20.11	-1.25	18.86	31.61	<i>m s</i> -3 31.615	+ 0.042	+ 0.004
	3246	+23 29	N		28 15.78	-1.46	14.32	N		24 44.15	-1.47	42.68	31.64			-3 31.569
	3261	+36 55	N		30 16.34	-1.50	14.84	N		26 44.39	-1.19	43.20	31.64			
	3268	+36 21	N		31 51.57	-1.49	50.08	N		28 19.64	-1.20	18.44	31.64			
	3278	+16 58	S		33 48.30	-1.45	46.85	S		30 16.87	-1.58	15.29	31.56			
				Mean, $T_E$	9 27 31											
Feb. 14	8079	+24 55	N	<i>I. P. E.</i>	8 58 49.79	+1.53	51.32	N	<i>I. P. W.</i>	8 55 27.92	+1.42	29.34	-3 21.98			
	8093	+25 5	N	<i>c - 0.7</i> <i>b + 3.4</i> <i>a + 8.3</i>	9 0 57.17	+1.53	58.70	N	<i>d</i> <i>c + 0.2</i> <i>b - 0.5</i> <i>a - 41.9</i>	57 35.43	+1.42	36.85	21.85			
	8107	+15 41	S	<i>s</i>	3 12.15	+1.56	13.71	S	<i>s</i>	59 50.48	+1.25	51.73	21.98			
	8117	+22 31	S	<i>Q + 1.48</i>	5 33.95	+1.54	35.49	S	<i>s</i>	9 2 12.04	+1.36	13.40	22.09	<i>m s</i> -3 21.948	+ 0.044	+ 0.004
	8129	+18 32	S		8 18.51	+1.55	20.06	S	<i>Q + 1.40</i>	4 56.89	+1.29	58.18	21.88			-3 21.900
	8138	+21 46	S		9 52.19	+1.54	53.73	S		6 30.48	+1.35	31.83	21.90			
	8162	+37 18	N		14 29.63	+1.49	31.12	N		11 7.56	+1.67	9.23	21.89			
	8170	+26 45	N		15 20.81	+1.53	22.34	N		11 58.88	+1.45	60.33	22.01			
				Mean, $T_E$	9 7 4											

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation  $\pi/2$ , all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.021$ $S_N - S_S = + 0^{\circ}.029$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				$M_N$
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 14	3206	+20 18	S	<i>I. P. E.</i>	9 21 8.97	-1.41	7.56	S	<i>I. P. W.</i>	9 17 47.20	-1.48	45.72	-3 21.84			
	3209	+17 6	S	<i>c - 0.7</i> <i>b + 3.4</i>	22 2.38	-1.40	0.98	S	<i>c + 0.2</i> <i>b - 0.5</i>	18 40.61	-1.53	39.08	21.90			
	3227	+9 34	S	<i>a + 8.3</i>	25 10.23	-1.38	8.85	S	<i>a - 4.9</i>	21 48.72	-1.65	47.07	21.78			
	3238	+34 10	N	<i>Q - 1.48</i>	26 37.55	-1.46	36.09	N	<i>Q - 1.40</i>	23 15.56	-1.20	14.36	21.73			
	3246	+23 29	N		27 61.39	-1.42	59.97	N		24 39.58	-1.42	38.16	21.81			
	3261	+36 55	N		30 1.89	-1.47	0.42	N		26 39.87	-1.14	38.73	21.69			
	3268	+36 21	N		31 37.14	-1.46	35.68	N		28 15.11	-1.15	13.96	21.72			
	3278	+16 58	S		33 33.92	-1.40	32.52	S		30 12.25	-1.53	10.72	21.80			
				Mean, $T_E$	9 27 17											
Feb. 16	3079	+24 55	N	<i>I. P. E.</i>	8 58 20.92	+1.54	22.46	N	<i>I. P. W.</i>	8 55 15.87	+1.51	17.38	-3 5.08			
	3093	+25 5	N	<i>c - 0.3</i> <i>b + 2.1</i>	9 0 28.33	+1.54	29.87	N	<i>c + 1.9</i> <i>b + 1.4</i>	57 23.22	+1.51	24.73	5.14			
	3107	+15 41	S	<i>a + 2.9</i>	2 43.08	+1.55	44.63	S	<i>a - 35.1</i>	59 38.24	+1.37	39.61	5.02			
	3117	+22 31	S	<i>Q + 1.50</i>	5 4.95	+1.54	6.49	S	<i>Q + 1.42</i>	9 1 59.85	+1.48	61.33	5.16			
	3129	+18 32	S		7 49.59	+1.54	51.13	S		4 44.61	+1.42	46.03	5.10			
	3138	+21 46	S		9 23.32	+1.54	24.86	S		6 18.20	+1.46	19.66	5.20			
	3162	+37 18	N		14 0.70	+1.53	2.23	N		10 55.37	+1.74	57.11	5.12			
	3170	+26 45	N		14 51.76	+1.53	53.29	N		11 46.71	+1.55	48.26	5.03			
				Mean, $T_E$	9 6 35											
Feb. 16	3206	+20 18	S	<i>I. P. E.</i>	9 20 40.11	-1.46	38.65	S	<i>I. P. W.</i>	9 17 35.02	-1.40	33.62	-3 5.03			
	3209	+17 6	S	<i>c - 0.3</i> <i>b + 2.1</i>	21 33.51	-1.45	32.06	S	<i>c + 1.9</i> <i>b + 1.4</i>	18 28.44	-1.44	27.00	5.06			
	3227	+9 34	S	<i>a + 2.9</i>	24 41.43	-1.44	39.99	S	<i>a - 35.1</i>	21 36.50	-1.55	34.95	5.04			
	3238	+34 10	N	<i>Q - 1.50</i>	26 8.73	-1.47	7.26	N	<i>Q - 1.42</i>	23 3.21	-1.16	2.05	5.21			
	3246	+23 29	N		27 32.50	-1.46	31.04	N		24 27.24	-1.35	25.89	5.15			
	3261	+36 55	N		29 33.00	-1.47	31.53	N		26 27.50	-1.11	26.39	5.14			
	3268	+36 21	N		31 8.23	-1.47	6.76	N		28 2.78	-1.12	1.66	5.10			
	3278	+16 58	S		33 5.02	-1.45	3.57	S		29 59.95	-1.45	58.50	5.07			
				Mean, $T_E$	9 26 48											

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\#12$ , all records having been transcribed by the same person.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. 22° 53', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND HAZARIBAGH (W) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .021 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .029	δL <sub>N</sub> - ρ
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 8	2617	+ 27 5	N	<i>I. P. W.</i>	7 50 45.21	+ 1.50	46.71	N	<i>I. P. E.</i>	8 2 42.03	+ 1.40	43.43	11 56.72				
	2632	+ 20 13	S	<i>c - 2.6</i> <i>d</i>	53 15.18	+ 1.51	16.69	S	<i>c - 1.3</i> <i>d</i>	5 12.14	+ 1.33	13.47	56.78				
	2639	+ 16 6	S	<i>b + 3.6</i> <i>a + 2.0</i>	54 45.89	+ 1.51	47.40	S	<i>b + 0.0</i> <i>a - 22.7</i>	6 42.90	+ 1.30	44.20	56.80				
	2649	+ 16 50	S	<i>s</i>	56 15.99	+ 1.50	17.49	S	<i>s</i>	8 13.00	+ 1.30	14.30	56.81				
	2657	+ 25 43	N	<i>Q + 1.48</i>	58 16.04	+ 1.50	17.54	N	<i>Q + 1.40</i>	10 12.93	+ 1.39	14.32	56.78	<i>m s</i> 11 56.769	+ 0.129	+ 0.004	11 56.902
	2672	+ 28 8	N		8 0 44.87	+ 1.49	46.36	N		12 41.69	+ 1.41	43.10	56.74				
	2688	+ 27 52	N		2 51.76	+ 1.50	53.26	N		14 48.61	+ 1.41	50.02	56.76				
	2714	+ 21 56	N		5 17.68	+ 1.51	19.19	N		17 14.62	+ 1.35	15.97	56.78				
			S		5 17.63	+ 1.51	19.14	S		17 14.54	+ 1.35	15.89	56.75				
Feb. 8	2759	+ 18 2	S	<i>I. P. W.</i>	8 11 57.26	- 1.46	55.80	S	<i>I. P. E.</i>	8 23 54.01	- 1.49	52.52	11 56.72				
	2778	+ 9 33	S	<i>c - 2.6</i> <i>d</i>	14 38.11	- 1.45	36.66	S	<i>c - 1.3</i> <i>d</i>	26 35.02	- 1.56	33.46	56.80				
	2782	+ 9 14	S	<i>b + 3.6</i> <i>a + 2.0</i>	15 39.41	- 1.45	37.96	S	<i>b + 0.0</i> <i>a - 22.7</i>	27 36.36	- 1.56	34.80	56.84				
	2788	+ 21 7	S	<i>s</i>	17 59.32	- 1.45	57.87	S	<i>s</i>	29 56.08	- 1.46	54.62	56.75				
	2798	+ 42 23	N	<i>Q - 1.48</i>	21 15.15	- 1.48	13.67	N	<i>Q - 1.40</i>	23 11.56	- 1.22	10.34	56.67	<i>m s</i> 11 56.734	+ 0.129	+ 0.004	11 56.867
	2815	+ 28 17	N		23 48.61	- 1.47	47.14	N		35 45.20	- 1.30	43.81	56.67				
	2833	+ 24 32	N		26 8.34	- 1.46	6.88	N		38 4.99	- 1.43	3.56	56.68				
	2840	+ 24 44	N		27 11.25	- 1.46	9.79	N		39 7.95	- 1.42	6.53	56.74				
Feb. 9	2617	+ 27 5	N	<i>I. P. W.</i>	7 50 29.65	+ 1.60	31.25	N	<i>I. P. E.</i>	8 2 26.38	+ 1.33	27.71	11 56.46				
	2632	+ 20 13	S	<i>c - 1.5</i> <i>d</i>	52 59.69	+ 1.60	61.29	S	<i>c - 2.1</i> <i>d</i>	4 56.53	+ 1.24	57.77	56.48				
	2639	+ 16 6	S	<i>b + 6.6</i> <i>a + 3.8</i>	54 30.32	+ 1.61	31.93	S	<i>b - 2.4</i> <i>a - 30.2</i>	6 27.23	+ 1.19	28.42	56.49				
	2649	+ 16 50	S	<i>s</i>	56 0.50	+ 1.61	2.11	S	<i>s</i>	7 57.33	+ 1.20	58.53	56.42				
	2657	+ 25 43	N	<i>Q + 1.48</i>	58 0.58	+ 1.59	2.17	N	<i>Q + 1.40</i>	9 57.30	+ 1.31	58.61	56.44	<i>m s</i> 11 56.490	+ 0.130	+ 0.004	11 56.624
	2672	+ 28 8	N		8 0 29.37	+ 1.60	30.97	N		12 26.12	+ 1.35	27.47	56.50				
	2688	+ 27 52	N		2 36.15	+ 1.60	37.75	N		14 33.04	+ 1.34	34.38	56.63				
	2714	+ 21 56	N		5 2.19	+ 1.60	3.79	N		16 59.06	+ 1.26	60.32	56.53				
			S		5 2.19	+ 1.60	3.79	S		16 58.99	+ 1.26	60.25	56.46				

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Peral. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 9	2759	+ 18 2	S	<i>I. P. W.</i>	8 11 41.59	-1.35	40.24	S	<i>I. P. E.</i>	8 23 38.40	-1.59	36.81	11 56.57			
	2778	+ 9 33	S	<i>d</i>	14 22.58	-1.34	21.24	S	<i>d</i>	26 19.55	-1.67	17.88	56.64			
	2782	+ 9 14	S	<i>c - 1.5</i> <i>b + 6.6</i> <i>a + 3.8</i>	15 23.85	-1.34	22.51	S	<i>c - 2.1</i> <i>b - 2.4</i> <i>a - 30.2</i>	27 20.80	-1.68	19.12	56.61			
	2788	+ 21 7	S	<i>s</i>	17 43.72	-1.36	42.36	S	<i>s</i>	29 40.46	-1.55	38.91	56.55			
	2798	+ 42 23	N	<i>Q - 1.48</i>	20 59.46	-1.38	58.08	N	<i>Q - 1.40</i>	32 55.96	-1.24	54.72	56.64			
	2815	+ 28 17	N		23 32.92	-1.36	31.56	N		35 29.64	-1.45	28.19	56.63			
	2833	+ 24 32	N		25 52.69	-1.36	51.33	N		37 49.44	-1.50	47.94	56.61			
Feb. 10	2617	+ 27 5	N	<i>I. P. W.</i>	7 50 14.03	+1.55	15.58	N	<i>I. P. E.</i>	8 2 10.74	+1.27	12.01	11 56.43			
	2632	+ 20 13	S	<i>d</i>	52 44.03	+1.55	45.58	S	<i>d</i>	4 40.88	+1.20	42.08	56.50			
	2639	+ 16 6	S	<i>c - 2.7</i> <i>b + 5.9</i> <i>a - 1.4</i>	54 14.74	+1.55	16.29	S	<i>c - 3.5</i> <i>b - 3.0</i> <i>a - 31.6</i>	6 11.63	+1.15	12.78	56.49			
	2640	+ 16 50	S	<i>s</i>	55 44.83	+1.55	46.38	S	<i>s</i>	7 41.81	+1.16	42.97	56.59			
	2657	+ 25 43	N	<i>Q + 1.47</i>	57 44.82	+1.55	46.37	N	<i>Q + 1.40</i>	9 41.69	+1.26	42.95	56.58			
	2672	+ 28 8	N		8 0 13.62	+1.55	15.17	N		12 10.47	+1.29	11.76	56.59			
	2688	+ 27 52	N		2 20.50	+1.55	22.05	N		14 17.37	+1.28	18.65	56.60			
	2714	+ 21 56	{ N S		4 46.47 4 46.41	+1.55 +1.55	48.02 47.96	{ N S		16 43.33 16 43.30	+1.22 +1.22	44.55 44.52	56.53 56.56			
Feb. 10	2759	+ 18 2	S	<i>I. P. W.</i>	8 11 25.96	-1.39	24.57	S	<i>I. P. E.</i>	8 23 22.79	-1.63	21.16	11 56.59			
	2778	+ 9 33	S	<i>d</i>	14 6.95	-1.41	5.54	S	<i>d</i>	26 3.81	-1.73	2.08	56.54			
	2782	+ 9 14	S	<i>c - 2.7</i> <i>b + 5.9</i> <i>a - 1.4</i>	15 8.23	-1.41	6.82	S	<i>c - 3.5</i> <i>b - 3.0</i> <i>a - 31.6</i>	27 5.21	-1.73	3.48	56.66			
	2788	+ 21 7	S	<i>s</i>	17 28.09	-1.39	26.70	S	<i>s</i>	29 24.89	-1.59	23.30	56.60			
	2798	+ 42 23	N	<i>Q - 1.47</i>	20 43.72	-1.37	42.35	N	<i>Q - 1.40</i>	32 40.37	-1.30	39.07	56.72			
	2815	+ 28 17	N		23 17.26	-1.39	15.87	N		35 13.98	-1.51	12.47	56.60			
	2888	+ 24 32	N		25 37.00	-1.39	35.61	N		37 33.80	-1.55	32.25	56.64			

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 10'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 13	2617	+ 27 5	N	<i>I. P. E.</i>	7 49 31.05	+ 1.50	32.55	N	<i>I. P. W.</i>	8 1 27.70	+ 1.40	29.10	11 56.55			
	2632	+ 20 13	S	<i>d</i> $c - 0^s.6$	52 1.00	+ 1.53	2.53	S	<i>d</i> $c - 1^s.5$	3 57.81	+ 1.27	59.08	56.55			
	2639	+ 16 6	S	$b + 1^s.7$ $a + 5^s.1$	53 31.73	+ 1.53	33.26	S	$b - 0^s.8$ $a - 43^s.3$	5 28.60	+ 1.21	29.81	56.55			
	2649	+ 16 50	S	<i>s</i> $Q + 1^s.49$	55 1.85	+ 1.53	3.38	S	<i>s</i> $Q + 1^s.40$	6 58.66	+ 1.22	59.88	56.50			
	2657	+ 25 43	N		57 1.90	+ 1.50	3.40	N		8 58.49	+ 1.37	59.86	56.46			
	2672	+ 28 8	N		59 30.80	+ 1.50	32.30	N		11 27.24	+ 1.42	28.66	56.36			
	2688	+ 27 52	N		8 1 37.67	+ 1.50	39.17	N		13 34.12	+ 1.41	35.53	56.36			
	2714	+ 21 56	{ N S		4 3.56	+ 1.52	5.08	N		16 0.21	+ 1.30	1.51	56.43			
					4 3.47	+ 1.52	4.99	S		16 0.19	+ 1.30	1.49	56.50			
Feb. 13	2759	+ 18 2	S	<i>I. P. E.</i>	8 10 42.92	- 1.45	41.47	S	<i>I. P. W.</i>	8 22 39.63	- 1.57	38.06	11 56.59			
	2778	+ 9 33	S	<i>d</i> $c - 0^s.6$	13 23.95	- 1.43	22.52	S	<i>d</i> $c - 1^s.5$	25 20.71	- 1.70	19.01	56.49			
	2782	+ 9 14	S	$b + 1^s.7$ $a + 5^s.1$	14 25.17	- 1.43	23.74	S	$b - 0^s.8$ $a - 43^s.3$	26 22.06	- 1.70	20.36	56.62			
	2788	+ 21 7	S	<i>s</i> $Q - 1^s.49$	16 45.07	- 1.46	43.61	S	<i>s</i> $Q - 1^s.40$	28 41.66	- 1.51	40.15	56.54			
	2798	+ 42 23	N		19 60.93	- 1.51	59.42	N		31 56.98	- 1.05	55.93	56.51			
	2815	+ 28 17	N		22 34.34	- 1.48	32.86	N		34 30.78	- 1.38	29.40	56.54			
	2833	+ 24 32	N		24 54.16	- 1.47	52.69	N		36 50.57	- 1.45	49.12	56.43			
	2840	+ 24 44	N		25 57.01	- 1.48	55.53	N		37 53.48	- 1.45	52.03	56.50			
Feb. 14	2617	+ 27 5	N	<i>I. P. E.</i>	7 49 16.68	+ 1.53	18.21	N	<i>I. P. W.</i>	8 1 13.29	+ 1.45	14.74	11 56.53			
	2632	+ 20 13	S	<i>d</i> $c - 0^s.7$	51 46.65	+ 1.55	48.20	S	<i>d</i> $c + 0^s.2$	3 43.43	+ 1.32	44.75	56.55			
	2639	+ 16 6	S	$b + 3^s.4$ $a + 8^s.3$	53 17.35	+ 1.56	18.91	S	$b - 0^s.5$ $a - 41^s.9$	5 14.19	+ 1.26	15.45	56.54			
	2657	+ 25 43	N	<i>s</i> $Q + 1^s.48$	56 47.45	+ 1.53	48.98	N	<i>s</i> $Q + 1^s.40$	8 44.12	+ 1.43	45.55	56.57			
	2688	+ 27 52	N		8 1 23.24	+ 1.53	24.77	N		13 19.83	+ 1.47	21.30	56.53			
	2714	+ 21 56	N		3 49.15	+ 1.54	50.69	N		15 45.86	+ 1.35	47.21	56.52			

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. 22° 38', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND HAZARIBAGH (W) Lat. 24° 0', Long. 6 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>.021</sup> S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>.029</sup>	δL <sub>N</sub> - ρ
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 14	2750	+ 18 2	S	<i>I. P. E.</i>	8 10 28.72	-1.40	27.32	S	<i>I. P. W.</i>	8 22 25.16	-1.51	23.65	11 56.33				
	2778	+ 9 33	S	<i>d</i>	13 9.75	-1.38	8.37	S	<i>d</i>	25 6.29	-1.65	4.64	56.27				
	2798	+ 42 23	N	<i>c</i> - 0.7 <i>b</i> + 3.4 <i>a</i> + 8.3	19 46.67	-1.49	45.18	N	<i>c</i> + 0.2 <i>b</i> - 0.5 <i>a</i> - 41.9	31 42.53	-1.00	41.53	56.35				
	2833	+ 24 32	N	<i>s</i>	24 40.00	-1.43	38.57	N	<i>s</i>	36 36.22	-1.39	34.83	56.26				
	2840	+ 24 44	N	<i>Q</i> - 1.48	25 42.75	-1.43	41.32	N	<i>Q</i> - 1.40	37 39.10	-1.39	37.71	56.39				
Feb. 16	2617	+ 27 5	N	<i>I. P. E.</i>	7 48 47.84	+1.53	49.37	N	<i>I. P. W.</i>	8 0 44.45	+1.56	46.01	11 56.64				
	2632	+ 20 13	S	<i>d</i>	51 17.89	+1.54	19.43	S	<i>d</i>	3 14.53	+1.44	15.97	56.54				
	2639	+ 16 6	S	<i>c</i> - 0.3 <i>b</i> + 2.1 <i>a</i> + 2.9	52 48.56	+1.55	50.11	S	<i>c</i> + 1.9 <i>b</i> + 1.4 <i>a</i> - 35.1	4 45.25	+1.38	46.63	56.52				
	2649	+ 16 50	S	<i>s</i>	54 18.69	+1.55	20.24	S	<i>s</i>	6 15.30	+1.38	16.68	56.41				
	2657	+ 25 43	N	<i>Q</i> + 1.50	56 18.65	+1.54	20.19	N	<i>Q</i> + 1.42	8 15.16	+1.52	16.68	56.49				
	2672	+ 28 8	N		58 47.51	+1.53	49.04	N		10 44.03	+1.58	45.61	56.57				
	2688	+ 27 52	N		8 0 54.41	+1.53	55.94	N		12 50.99	+1.57	52.56	56.62				
	2714	+ 21 56	{ N S		3 20.39	+1.54	21.93	N		15 16.91	+1.47	18.38	56.45				
					3 20.30	+1.54	21.84	S		15 16.82	+1.47	18.29	56.45				
Feb. 16	2750	+ 18 2	S	<i>I. P. E.</i>	8 9 59.79	-1.45	58.34	S	<i>I. P. W.</i>	8 21 56.35	-1.43	54.92	11 56.58				
	2778	+ 9 33	S	<i>d</i>	12 40.75	-1.44	39.31	S	<i>d</i>	24 37.42	-1.55	35.87	56.56				
	2782	+ 9 14	S	<i>c</i> - 0.3 <i>b</i> + 2.1 <i>a</i> + 2.9	13 42.05	-1.44	40.61	S	<i>c</i> + 1.9 <i>b</i> + 1.4 <i>a</i> - 35.1	25 38.76	-1.55	37.21	56.60				
	2788	+ 21 7	S	<i>s</i>	16 1.98	-1.46	0.52	S	<i>s</i>	27 58.41	-1.38	57.03	56.51				
	2798	+ 42 23	N	<i>Q</i> - 1.50	19 17.67	-1.48	16.19	N	<i>Q</i> - 1.42	31 13.81	-0.98	12.83	56.64				
	2815	+ 28 17	N		21 51.15	-1.47	49.68	N		33 47.55	-1.26	46.29	56.61				
	2833	+ 24 32	N		24 10.95	-1.46	9.49	N		36 7.32	-1.33	5.99	56.50				
	2840	+ 24 44	N		25 13.76	-1.46	12.30	N		37 10.30	-1.33	8.97	56.67				

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 8	3446	+ 35 49	N	<i>I. P. W.</i>	9 48 42.54	+ 1.50	44.04	N	<i>I. P. E.</i>	10 0 39.29	+ 1.49	40.78	11 56.74			
	8457	+ 10 35	S	<i>c - 2.6</i>	49 52.66	+ 1.51	54.17	S	<i>c - 1.3</i>	1 49.70	+ 1.25	50.95	56.78			
	3466	+ 41 15	N	<i>b + 3.6</i> <i>a + 2.0</i>	52 6.61	+ 1.48	8.09	N	<i>b 0.0</i> <i>a - 22.7</i>	4 3.16	+ 1.56	4.72	56.63			
	8475	+ 13 56	S	<i>s</i> <i>Q + 1.48</i>	53 31.52	+ 1.51	33.03	S	<i>s</i> <i>Q + 1.40</i>	5 28.66	+ 1.28	29.94	56.91			
	8485	+ 21 45	S		56 14.21	+ 1.51	15.72	S		8 11.24	+ 1.35	12.59	56.87			
	3508	+ 24 0	N		58 21.75	+ 1.50	23.25	N		10 18.73	+ 1.37	20.10	56.85			
	3530	+ 41 50	N		10 3 23.96	+ 1.48	25.44	N		15 20.79	+ 1.57	22.36	56.92			
	3533	+ 42 6	N		3 32.25	+ 1.48	33.73	N		15 29.05	+ 1.57	30.62	56.89			
Feb. 8	3609	+ 9 55	S	<i>I. P. W.</i>	10 14 52.85	- 1.45	51.40	S	<i>I. P. E.</i>	10 26 49.88	- 1.56	48.32	11 56.92			
	8622	+ 9 16	S	<i>c - 2.6</i>	17 7.63	- 1.45	6.18	S	<i>c - 1.3</i>	29 4.66	- 1.56	3.10	56.92			
	8633	+ 34 41	N	<i>b + 3.6</i> <i>a + 2.0</i>	19 27.77	- 1.46	26.31	N	<i>b 0.0</i> <i>a - 22.7</i>	31 24.46	- 1.32	23.14	56.83			
	8640	+ 32 35	N	<i>s</i> <i>Q - 1.48</i>	20 21.91	- 1.47	20.44	N	<i>s</i> <i>Q - 1.40</i>	32 18.65	- 1.35	17.30	56.86			
	8650	+ 28 8	N		22 6.16	- 1.47	4.69	N		34 3.01	- 1.39	1.62	56.93			
	8661	+ 32 19	N		23 51.76	- 1.47	50.29	N		35 48.43	- 1.35	47.08	56.79			
	8671	+ 23 48	N		25 17.15	- 1.46	15.69	N		37 13.91	- 1.43	12.48	56.79			
	8687	+ 8 8	S		25 17.03	- 1.46	15.57	S		37 13.84	- 1.43	12.41	56.84			
			S		27 40.84	- 1.45	39.39	S		39 37.89	- 1.57	36.32	56.93			
Feb. 9	8446	+ 35 49	N	<i>I. P. W.</i>	9 48 36.55	+ 1.60	38.15	N	<i>I. P. E.</i>	10 0 33.33	+ 1.44	34.77	11 56.62			
	8457	+ 10 35	S	<i>c - 1.5</i>	49 46.63	+ 1.62	48.25	S	<i>c - 2.1</i>	1 43.79	+ 1.14	44.93	56.68			
	8466	+ 41 15	N	<i>b + 6.6</i> <i>a + 3.8</i>	52 0.55	+ 1.58	2.13	N	<i>b - 2.4</i> <i>a - 30.2</i>	3 57.26	+ 1.54	58.80	56.67			
	8475	+ 13 56	S	<i>s</i> <i>Q + 1.48</i>	53 25.64	+ 1.62	27.26	S	<i>s</i> <i>Q + 1.40</i>	5 22.67	+ 1.18	23.85	56.59			
	8485	+ 21 45	S		56 8.32	+ 1.60	9.92	S		8 5.25	+ 1.26	6.51	56.59			
	8508	+ 24 0	N		58 15.80	+ 1.60	17.40	N		10 12.77	+ 1.29	14.06	56.66			

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.021$ $S_N - S_S = + 0^s.029$
			Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 9	3609	+ 9 55	S	<i>I. P. W.</i>	10 14 46.86	-1.34	45.52	S	<i>I. P. E.</i>	10 26 43.88	-1.67	42.21	11 56.69			
	3622	+ 9 16	S	<i>d</i>	17 1.58	-1.34	0.24	S	<i>d</i>	28 58.69	-1.68	57.01	56.77			
	3633	+ 34 41	N	<i>c - 1.5</i> <i>b + 6.6</i> <i>a + 3.8</i>	19 21.66	-1.36	20.30	N	<i>c - 2.1</i> <i>b - 2.4</i> <i>a - 30.2</i>	31 18.52	-1.37	17.15	56.85			
	3640	+ 32 35	N	<i>s</i>	20 15.77	-1.37	14.40	N	<i>s</i>	32 12.65	-1.40	11.25	56.85			
	3650	+ 28 8	N	<i>Q - 1.48</i>	21 60.08	-1.36	58.72	N	<i>Q - 1.40</i>	33 57.01	-1.45	55.56	56.84			
	3661	+ 32 19	N		23 45.58	-1.37	44.21	N		35 42.49	-1.40	41.09	56.88			
	3671	+ 23 48	N		25 10.88	-1.36	9.52	N		37 7.95	-1.51	6.44	56.92			
	3687	+ 8 8	S		25 10.98	-1.36	9.62	S		37 7.88	-1.51	6.37	56.75			
					27 34.83	-1.34	33.49	S		39 31.92	-1.69	30.23	56.74			
Feb. 10	3446	+ 35 49	N	<i>I. P. W.</i>	9 48 30.36	+1.56	31.92	N	<i>I. P. E.</i>	10 0 27.22	+1.40	28.62	11 56.70			
	3457	+ 10 35	S	<i>d</i>	49 40.56	+1.53	42.09	S	<i>d</i>	1 37.68	+1.08	38.76	56.67			
	3466	+ 41 15	N	<i>c - 2.7</i> <i>b + 5.9</i> <i>a - 1.4</i>	51 54.28	+1.57	55.85	N	<i>c - 3.5</i> <i>b - 3.0</i> <i>a - 31.6</i>	3 51.14	+1.48	52.62	56.77			
	3475	+ 13 56	S	<i>s</i>	53 19.47	+1.55	21.02	S	<i>s</i>	5 16.62	+1.12	17.74	56.72			
	3485	+ 21 45	S	<i>Q + 1.47</i>	56 2.09	+1.55	3.64	S	<i>Q + 1.40</i>	7 59.19	+1.22	60.41	56.77			
	3508	+ 24 0	N		58 9.59	+1.55	11.14	N		10 6.74	+1.24	7.98	56.84			
	3530	+ 41 50	N		10 3 11.73	+1.57	13.30	N		15 8.67	+1.49	10.16	56.86			
	3533	+ 42 6	N		3 20.00	+1.57	21.57	N		15 16.96	+1.50	18.46	56.89			
Feb. 10	3609	+ 9 55	S	<i>I. P. W.</i>	10 14 40.76	-1.41	39.35	S	<i>I. P. E.</i>	10 26 37.77	-1.73	36.04	11 56.69			
	3622	+ 9 16	S	<i>d</i>	16 55.53	-1.41	54.12	S	<i>d</i>	28 52.62	-1.73	50.89	56.77			
	3633	+ 34 41	N	<i>c - 2.7</i> <i>b + 5.9</i> <i>a - 1.4</i>	19 15.63	-1.37	14.26	N	<i>c - 3.5</i> <i>b - 3.0</i> <i>a - 31.6</i>	31 12.40	-1.41	10.99	56.73			
	3640	+ 32 35	N	<i>s</i>	20 9.68	-1.37	8.31	N	<i>s</i>	32 6.53	-1.44	5.09	56.78			
	3650	+ 28 8	N	<i>Q - 1.47</i>	21 54.04	-1.39	52.65	N	<i>Q - 1.40</i>	33 50.95	-1.51	49.44	56.79			
	3661	+ 32 19	N		23 39.53	-1.37	38.16	N		35 36.35	-1.45	34.90	56.74			
	3671	+ 23 48	N		25 4.84	-1.39	3.45	N		37 1.83	-1.56	0.27	56.82			
	3687	+ 8 8	S		25 4.85	-1.39	3.46	S		37 1.74	-1.56	0.18	56.72			
					27 28.74	-1.41	27.33	S		39 25.84	-1.75	24.09	56.76			

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation with all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $85^{\circ} 53' 36''$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.021$ $S_N - S_S = + 0^{\circ}.029$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction (Constants)	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction (Constants)	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 13	3446	+35 49	N	<i>I. P. E.</i>	9 48 13.40	+1.49	14.89	N	<i>I. P. W.</i>	10 0 10.05	+1.59	11.64	11 56.75			
	3457	+10 35	S	$c - 0.6$	49 23.61	+1.54	25.15	S	$c - 1.5$	1 20.60	+1.12	21.72	56.57			
	3466	+41 15	N	$b + 1.7$ $a + 5.1$	51 37.40	+1.47	38.87	N	$b - 0.8$ $a - 43.3$	3 33.87	+1.72	35.59	56.72			
	3475	+13 56	S	$s$ $Q + 1.49$	53 2.40	+1.54	3.94	S	$s$ $Q + 1.40$	4 59.41	+1.18	60.59	56.65			
	3485	+21 45	S		55 45.11	+1.52	46.63	S		7 41.96	+1.30	43.26	56.63			
	3508	+24 0	N		57 52.74	+1.51	54.25	N		9 49.49	+1.34	50.83	56.58			
	3530	+41 50	N		10 2 55.01	+1.47	56.48	N		14 51.30	+1.73	53.03	56.55			
	3533	+42 6	N		3 3.25	+1.47	4.72	N		14 59.58	+1.74	61.32	56.60			
Feb. 13	3609	+9 55	S	<i>I. P. E.</i>	10 14 23.73	-1.43	22.30	S	<i>I. P. W.</i>	10 26 20.59	-1.69	18.90	11 56.60			
	3622	+9 16	S	$c - 0.6$	16 38.52	-1.43	37.09	S	$c - 1.5$	28 35.42	-1.70	33.72	56.63			
	3633	+34 41	N	$b + 1.7$ $a + 5.1$	18 58.63	-1.49	57.14	N	$b - 0.8$ $a - 43.3$	30 55.07	-1.24	53.83	56.69			
	3640	+32 35	N	$s$ $Q - 1.49$	19 52.77	-1.49	51.28	N	$s$ $Q - 1.40$	31 49.17	-1.29	47.88	56.60			
	3650	+28 8	N		21 37.07	-1.48	35.59	N		33 33.60	-1.38	32.22	56.63			
	3661	+32 19	N		23 22.55	-1.49	21.06	N		35 19.01	-1.29	17.72	56.66			
	3671	+23 48	N		24 47.85	-1.47	46.38	N		36 44.50	-1.46	43.04	56.66			
	3687	+8 8	S		24 47.86	-1.47	46.39	S		36 44.43	-1.46	42.97	56.58			
					27 11.70	-1.43	10.27	S		39 8.62	-1.72	6.90	56.63			
Feb. 14	3446	+35 49	N	<i>I. P. E.</i>	9 48 8.98	+1.50	10.48	N	<i>I. P. W.</i>	10 0 5.54	+1.64	7.18	11 56.70			
	3457	+10 35	S	$c - 0.7$	49 19.08	+1.58	20.66	S	$c + 0.2$	1 16.05	+1.17	17.22	56.56			
	3466	+41 15	N	$b + 3.4$ $a + 8.3$	51 32.89	+1.48	34.37	N	$b - 0.5$ $a - 41.9$	3 29.31	+1.77	31.08	56.71			
	3475	+13 56	S	$s$ $Q + 1.48$	52 57.98	+1.57	59.55	S	$s$ $Q + 1.40$	4 54.87	+1.22	56.09	56.54			
	3485	+21 45	S		55 40.67	+1.54	42.21	S		7 37.43	+1.35	38.78	56.57			
	3508	+24 0	N		57 48.18	+1.53	49.71	N		9 44.96	+1.40	46.36	56.65			
	3530	+41 50	N		10 2 50.59	+1.48	52.07	N		14 46.76	+1.79	48.55	56.48			
	3533	+42 6	N		2 58.83	+1.48	60.31	N		14 55.00	+1.79	56.79	56.48			

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation with all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 53'$ , Long. $85^{\circ} 53' 36''$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.021$ $S_N - S_S = + 0^{\circ}.029$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 14	3609	+ 9 55	S	<i>I. P. E.</i>	10 14 19.27	-1.38	17.89	S	<i>I. P. W.</i>	10 26 16.05	-1.64	14.41	11 56.52			
	3622	+ 9 16	S	<i>c - 0.7</i>	16 33.98	-1.38	32.60	S	<i>d</i>	28 30.87	-1.65	29.22	56.62			
	3633	+ 34 41	N	<i>b + 3.4</i> <i>a + 8.3</i>	18 54.28	-1.46	52.82	N	<i>c + 0.2</i> <i>b - 0.5</i> <i>a - 4.9</i>	30 50.51	-1.19	49.32	56.50			
	3640	+ 32 35	N	<i>s</i>	19 48.39	-1.45	46.94	N	<i>s</i>	31 44.60	-1.23	43.37	56.43			
	3650	+ 28 8	N	<i>Q - 1.48</i>	21 32.70	-1.43	31.27	N	<i>Q - 1.40</i>	33 29.06	-1.32	27.74	56.47			
	3661	+ 32 19	N		23 18.28	-1.45	16.83	N		35 14.46	-1.24	13.22	56.39			
	3671	+ 23 48	N		24 43.54	-1.42	42.12	N		36 39.95	-1.40	38.55	56.43			
			S		24 43.45	-1.42	42.03	S		36 39.88	-1.40	38.48	56.45			
	3687	+ 8 8	S		27 7.28	-1.38	5.90	S		39 4.10	-1.67	2.43	56.53			
Feb. 16	3446	+ 35 49	N	<i>I. P. E.</i>	9 47 56.66	+1.53	58.19	N	<i>I. P. W.</i>	9 59 53.31	+1.71	55.02	11 56.83			
	3457	+ 10 35	S	<i>c - 0.3</i>	49 6.64	+1.55	8.19	S	<i>d</i>	10 1 3.75	+1.30	5.05	56.86			
	3466	+ 41 15	N	<i>b + 2.1</i> <i>a + 2.9</i>	51 20.61	+1.52	22.13	N	<i>c + 1.9</i> <i>b + 1.4</i> <i>a - 35.1</i>	3 17.05	+1.83	18.88	56.75			
	3475	+ 13 56	S	<i>s</i>	52 45.54	+1.55	47.09	S	<i>s</i>	4 42.59	+1.35	43.94	56.85			
	3485	+ 21 45	S	<i>Q + 1.50</i>	55 28.26	+1.54	29.80	S	<i>Q + 1.42</i>	7 25.15	+1.46	26.61	56.81			
	3508	+ 24 0	N		57 35.76	+1.54	37.30	N		9 32.64	+1.50	34.14	56.84			
	3530	+ 41 50	N		10 2 37.93	+1.52	39.45	N		14 34.49	+1.84	36.33	56.88			
	3533	+ 42 6	N		2 46.22	+1.52	47.74	N		14 42.76	+1.85	44.61	56.87			
Feb. 16	3622	+ 9 16	S	<i>I. P. E.</i>	10 16 21.73	-1.44	20.29	S	<i>I. P. W.</i>	10 28 18.45	-1.55	16.90	11 56.61			
	3633	+ 34 41	N	<i>c - 0.3</i>	18 41.91	-1.47	40.44	N	<i>d</i>	30 38.18	-1.15	37.03	56.59			
	3640	+ 32 35	N	<i>b + 2.1</i> <i>a + 2.9</i>	19 35.96	-1.46	34.50	N	<i>c + 1.9</i> <i>b + 1.4</i> <i>a - 35.1</i>	31 32.35	-1.19	31.16	56.66			
	3650	+ 28 8	N	<i>s</i>	21 20.23	-1.47	18.76	N	<i>s</i>	33 16.74	-1.26	15.48	56.72			
	3661	+ 32 19	N	<i>Q - 1.50</i>	23 5.84	-1.46	4.38	N	<i>Q - 1.42</i>	35 2.11	-1.19	0.92	56.54			
	3671	+ 23 48	N		24 31.07	-1.46	29.61	N		36 27.60	-1.34	26.26	56.65			
			S		24 31.11	-1.46	29.65	S		36 27.51	-1.34	26.17	56.52			
	3687	+ 8 8	S		26 55.10	-1.44	53.66	S		38 51.71	-1.57	50.14	56.48			

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.030$ $S_N - S_S = + 0^s.042$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 25	3434	+ 12 12	S	<i>I. P. W.</i>	9 58 32.79	+ 0.96	33.75	S	<i>I. P. W.</i>	9 57 23.85	+ 1.29	25.14	- 1 8.61			
	3446	+ 35 49	N	<i>d</i> 0 0.0	10 11.72	+ 1.02	12.74	N	<i>d</i> 0 + 0.4	10 0 2.60	+ 1.65	4.25	8.49			
	3457	+ 10 35	S	<i>b</i> - 0.3 <i>a</i> - 5.7	2 21.99	+ 0.95	22.94	S	<i>b</i> + 3.4 <i>a</i> - 33.5	1 13.04	+ 1.27	14.31	8.63			
	3466	+ 41 15	N	<i>s</i> <i>Q</i> + 1.00	4 35.77	+ 1.03	36.80	N	<i>s</i> <i>Q</i> + 1.36	3 26.39	+ 1.77	28.16	8.64			
	3490	+ 32 4	N		9 3.30	+ 1.00	4.30	N		7 54.09	+ 1.58	55.67	8.63			
				Mean, $T_E$	10 3 9											
Feb. 25	3602	+ 32 59	N	<i>I. P. W.</i>	10 25 54.77	- 0.99	53.78	N	<i>I. P. W.</i>	10 24 46.34	- 1.12	45.22	- 1 8.56			
	3609	+ 9 55	S	<i>d</i> 0 0.0	27 21.13	- 1.05	20.08	S	<i>d</i> 0 + 0.4	26 13.03	- 1.46	11.57	8.51			
	3622	+ 9 16	S	<i>b</i> - 0.3 <i>a</i> - 5.7	29 35.91	- 1.05	34.86	S	<i>b</i> + 3.4 <i>a</i> - 33.5	28 27.78	- 1.47	26.31	8.55			
	3633	+ 34 41	N	<i>s</i> <i>Q</i> - 1.00	31 55.97	- 0.99	54.98	N	<i>s</i> <i>Q</i> - 1.36	30 47.54	- 1.09	46.45	8.53			
				Mean, $T_E$	10 28 42											
Mar. 1	3434	+ 12 12	S	<i>I. P. W.</i>	9 57 43.14	+ 0.90	44.04	S	<i>I. P. W.</i>	9 57 2.28	+ 1.11	3.39	- 0 40.65			
	3446	+ 35 49	N	<i>d</i> 0 + 2.1	10 0 22.00	+ 1.09	23.09	N	<i>d</i> 0 + 0.1	59 40.95	+ 1.60	42.55	40.54			
	3457	+ 10 35	S	<i>b</i> - 2.1 <i>a</i> - 18.8	1 32.37	+ 0.89	33.26	S	<i>b</i> - 1.5 <i>a</i> - 48.2	10 0 51.52	+ 1.08	52.60	40.66			
	3466	+ 41 15	N	<i>s</i> <i>Q</i> + 1.01	3 45.93	+ 1.15	47.08	N	<i>s</i> <i>Q</i> + 1.37	3 4.78	+ 1.76	6.54	40.54			
	3476	+ 13 56	S		5 11.24	+ 0.91	12.15	S		4 30.40	+ 1.15	31.55	40.60			
	3484	+ 32 1	N		7 17.68	+ 1.06	18.74	N		6 36.70	+ 1.51	38.21	40.53			
	3490	+ 32 4	N		8 13.55	+ 1.06	14.61	N		7 32.47	+ 1.51	33.98	40.63			
	3506	+ 18 20	S		9 44.26	+ 0.95	45.21	S		9 3.28	+ 1.22	4.50	40.71			
				Mean, $T_E$	10 4 14											

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) <i>Lat.</i> 26° 31', <i>Long.</i> 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND HAZARIBAGH (W) <i>Lat.</i> 24° 0', <i>Long.</i> 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0.030$ $S_N - S_S = + 0.042$	$M_N$
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 1	3545	+ 30 13	N	<i>I. P. W.</i>	10 16 56.86	-0.98	55.88	N	<i>I. P. W.</i>	10 16 16.56	-1.28	15.28	-0 40.60				
	3560	+ 34 24	N	<i>d</i>	19 4.66	-0.94	3.72	N	<i>d</i>	18 24.40	-1.17	23.23	40.49				
	3575	+ 10 22	S	<i>c + 2.1</i> <i>b - 2.1</i> <i>a - 18.8</i>	21 20.72	-1.13	19.59	S	<i>c + 0.1</i> <i>b - 1.5</i> <i>a - 48.2</i>	20 40.68	-1.66	39.02	40.57				
	3583	+ 10 46	S	<i>s</i>	22 52.90	-1.13	51.77	S	<i>s</i>	22 12.91	-1.66	11.25	40.52				
	3602	+ 32 59	N	<i>Q - 1.01</i>	25 5.06	-0.95	4.11	N	<i>Q - 1.37</i>	24 24.73	-1.21	23.52	40.59				
	3609	+ 9 55	S		26 31.53	-1.13	30.40	S		25 51.48	-1.67	49.81	40.59				
	3622	+ 9 16	S		28 46.34	-1.14	45.20	S		28 6.33	-1.68	4.65	40.55				
	3633	+ 34 41	N		31 6.24	-0.94	5.30	N		30 25.94	-1.16	24.78	40.52				
				Mean, $T_E$	10 23 58												
Mar. 2	3434	+ 12 12	S	<i>I. P. W.</i>	9 57 30.87	+0.99	31.86	S	<i>I. P. W.</i>	9 56 55.94	+1.16	57.10	-0 34.76				
	3446	+ 35 49	N	<i>d</i>	10 0 9.82	+1.14	10.96	N	<i>d</i>	59 34.51	+1.66	36.17	34.79				
	3457	+ 10 35	S	<i>c + 2.9</i> <i>b - 0.6</i> <i>a - 14.5</i>	1 20.16	+0.98	21.14	S	<i>c + 1.5</i> <i>b - 0.7</i> <i>a - 46.7</i>	10 0 45.16	+1.13	46.29	34.85				
	3466	+ 41 15	N	<i>s</i>	3 33.82	+1.19	35.01	N	<i>s</i>	2 58.38	+1.81	60.19	34.82				
	3475	+ 13 56	S	<i>Q + 1.01</i>	4 58.98	+1.00	59.98	S	<i>Q + 1.37</i>	4 24.04	+1.19	25.23	34.75				
	3484	+ 32 1	N		7 5.48	+1.11	6.59	N		6 30.26	+1.56	31.82	34.77				
	3490	+ 32 4	N		8 1.36	+1.11	2.47	N		7 26.15	+1.56	27.71	34.76				
	3506	+ 18 20	S		9 32.01	+1.02	33.03	S		8 56.95	+1.28	58.23	34.80				
				Mean, $T_E$	10 4 2												
Mar. 2	3545	+ 30 13	N	<i>I. P. W.</i>	10 16 44.58	-0.93	43.65	N	<i>I. P. W.</i>	10 16 10.24	-1.22	9.02	-0 34.63				
	3560	+ 34 24	N	<i>d</i>	18 52.41	-0.89	51.52	N	<i>d</i>	18 18.06	-1.12	16.94	34.58				
	3575	+ 10 22	S	<i>c + 2.9</i> <i>b - 0.6</i> <i>a - 14.5</i>	21 8.46	-1.04	7.42	S	<i>c + 1.5</i> <i>b - 0.7</i> <i>a - 46.7</i>	20 34.35	-1.61	32.74	34.68				
	3583	+ 10 46	S	<i>s</i>	22 40.64	-1.04	39.60	S	<i>s</i>	22 6.61	-1.61	5.00	34.60				
	3602	+ 32 59	N	<i>Q - 1.01</i>	24 52.82	-0.91	51.91	N	<i>Q - 1.37</i>	24 18.47	-1.15	17.32	34.59				
	3609	+ 9 55	S		26 19.23	-1.04	18.19	S		25 45.25	-1.62	43.63	34.56				
	3622	+ 9 16	S		28 33.97	-1.05	32.92	S		27 60.06	-1.63	58.43	34.49				
	3633	+ 34 41	N		30 53.87	-0.89	52.98	N		30 19.62	-1.11	18.51	34.47				
				Mean, $T_E$	10 23 46												

NOTE.  $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $H_N - H_S = + 0^{\circ}.030$ $S_N - S_S = + 0^{\circ}.042$
			Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 3	3434	+12 12	S	<i>I. P. E.</i>	9 57 18.88	+0.89	19.77	S	<i>I. P. E.</i>	9 56 49.97	+0.99	50.96	-0 28.81			
	3446	+35 49	N	$c - 0^{\circ}.8$ $b - 0^{\circ}.3$ $a - 16^{\circ}.1$	59 57.91	+1.05	58.96	N	$c - 5^{\circ}.6$ $b - 1^{\circ}.5$ $a - 47^{\circ}.8$	59 28.68	+1.44	30.12	28.84			
	3457	+10 35	S	$s$	10 1 8.12	+0.88	9.00	S	$s$	10 0 39.22	+0.96	40.18	28.82			
	3466	+41 15	N	$Q + 1^{\circ}.01$	3 21.87	+1.10	22.97	N	$Q + 1^{\circ}.37$	2 52.55	+1.59	54.14	28.83			
	3475	+13 56	S		4 47.00	+0.90	47.90	S		4 18.09	+1.02	19.11	28.79			
	3484	+32 1	N		6 53.54	+1.02	54.56	N		6 24.38	+1.36	25.74	28.82			
	3490	+32 4	N		7 49.41	+1.02	50.43	N		7 20.28	+1.36	21.64	28.79			
	3506	+18 20	S		9 19.96	+0.93	20.89	S		8 51.05	+1.09	52.14	28.75			
				Mean, $T_E$	10 3 50											
Mar. 3	3545	+30 13	N	<i>I. P. E.</i>	10 16 32.54	-1.01	31.53	N	<i>I. P. E.</i>	10 16 4.32	-1.43	2.89	-0 28.64			
	3560	+34 24	N	$c - 0^{\circ}.8$ $b - 0^{\circ}.3$ $a - 16^{\circ}.1$	18 40.47	-0.98	39.49	N	$c - 5^{\circ}.6$ $b - 1^{\circ}.5$ $a - 47^{\circ}.8$	18 12.16	-1.32	10.84	28.65			
	3575	+10 22	S	$s$	20 56.40	-1.14	55.26	S	$s$	20 28.41	-1.79	26.62	28.64			
	3583	+10 46	S	$Q - 1^{\circ}.01$	22 28.60	-1.14	27.46	S	$Q - 1^{\circ}.37$	21 60.62	-1.78	58.84	28.62			
	3609	+9 55	S		26 7.21	-1.14	6.07	S		25 39.24	-1.80	37.44	28.63			
	3622	+9 16	S		28 22.00	-1.15	20.85	S		27 54.26	-1.81	52.45	28.40			
	3633	+34 41	N		30 42.04	-0.98	41.06	N		30 13.78	-1.32	12.46	28.60			
				Mean, $T_E$	10 23 24											
Mar. 4	3434	+12 12	S	<i>I. P. E.</i>	9 57 6.39	+0.83	7.22	S	<i>I. P. E.</i>	9 56 45.32	+1.02	46.34	-0 20.88			
	3446	+35 49	N	$c - 2^{\circ}.1$ $b - 0^{\circ}.7$ $a - 18^{\circ}.7$	59 45.35	+1.01	46.36	N	$c - 5^{\circ}.6$ $b + 0^{\circ}.7$ $a - 48^{\circ}.1$	59 23.91	+1.49	25.40	20.96			
	3457	+10 35	S	$s$	10 0 55.59	+0.82	56.41	S	$s$	10 0 34.50	+1.00	35.50	20.91			
	3466	+41 15	N	$Q + 1^{\circ}.01$	3 9.29	+1.07	10.36	N	$Q + 1^{\circ}.36$	2 47.84	+1.64	49.48	20.88			
	3475	+13 56	S		4 34.46	+0.84	35.30	S		4 13.42	+1.06	14.48	20.82			
	3484	+32 1	N		6 40.96	+0.98	41.94	N		6 19.69	+1.41	21.10	20.84			
	3490	+32 4	N		7 36.79	+0.98	37.77	N		7 15.57	+1.41	16.98	20.79			
	3506	+18 20	S		9 7.42	+0.88	8.30	S		8 46.34	+1.14	47.48	20.82			
				Mean, $T_E$	10 3 37											

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation  $\pi i$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) <i>Lat.</i> 26° 31', <i>Long.</i> 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND HAZARIBAGH (W) <i>Lat.</i> 24° 0', <i>Long.</i> 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0.030$ $S_N - S_S = + 0.042$
			<i>By Hæviside, with Telescope No. 1</i>					<i>By Strahan, with Telescope No. 2</i>					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 4	3545	+30 13	N	<i>I. P. E.</i>	10 16 20.19	-1.05	19.14	N	<i>I. P. E.</i>	10 15 59.68	-1.36	58.32	-0 20.82			
	3560	+34 24	N	<i>d</i>	18 28.02	-1.02	27.00	N	<i>d</i>	18 7.46	-1.25	6.21	20.79			
	3575	+10 22	S	<i>c</i> - 2.1 <i>b</i> - 0.7 <i>a</i> - 18.7	20 44.00	-1.20	42.80	S	<i>c</i> - 5.6 <i>b</i> + 0.7 <i>a</i> - 48.1	20 23.77	-1.73	22.04	20.76			
	3583	+10 46	S	<i>s</i>	22 16.16	-1.19	14.97	S	<i>s</i>	21 55.95	-1.72	54.23	20.74			
	3602	+32 59	N	<i>Q</i> - 1.01	24 28.36	-1.03	27.33	N	<i>Q</i> - 1.36	24 7.91	-1.29	6.62	20.71			
	3609	+9 55	S		25 54.80	-1.20	53.60	S		25 34.56	-1.74	32.82	20.78			
	3622	+9 16	S		28 9.55	-1.21	8.34	S		27 49.41	-1.75	47.66	20.68			
	3633	+34 41	N		30 29.60	-1.02	28.58	N		30 9.14	-1.24	7.90	20.68			
				Mean, $T_E$	10 23 21											
Mar. 5	3434	+12 12	S	<i>I. P. E.</i>	9 56 53.04	+0.90	53.94	S	<i>I. P. E.</i>	9 56 40.72	+0.92	41.64	-0 12.30			
	3440	+35 49	N	<i>d</i>	59 32.00	+1.09	33.09	N	<i>d</i>	59 19.39	+1.39	20.78	12.31			
	3457	+10 35	S	<i>c</i> - 0.7 <i>b</i> + 0.6 <i>a</i> - 16.8	10 042.24	+0.89	43.13	S	<i>c</i> - 7.8 <i>b</i> - 2.0 <i>a</i> - 49.3	10 029.96	+0.90	30.86	12.27			
	3466	+41 15	N	<i>s</i>	2 56.01	+1.14	57.15	N	<i>s</i>	2 43.28	+1.53	44.81	12.34			
	3475	+13 56	S	<i>Q</i> + 1.01	4 21.11	+0.91	22.02	S	<i>Q</i> + 1.38	4 8.87	+0.95	9.82	12.20			
	3484	+32 1	N		6 27.58	+1.05	28.63	N		6 15.15	+1.30	16.45	12.18			
	3490	+32 4	N		7 23.49	+1.05	24.54	N		7 11.04	+1.30	12.34	12.20			
	3506	+18 20	S		8 54.01	+0.94	54.95	S		8 41.88	+1.03	42.91	12.04			
				Mean, $T_E$	10 3 24											
Mar. 6	3545	+30 13	N	<i>I. P. E.</i>	10 16 6.67	-0.98	5.69	N	<i>I. P. E.</i>	10 15 55.14	-1.49	53.65	-0 12.04			
	3560	+34 24	N	<i>d</i>	18 14.59	-0.95	13.64	N	<i>d</i>	18 2.94	-1.39	1.55	12.09			
	3575	+10 22	S	<i>c</i> - 0.7 <i>b</i> + 0.6 <i>a</i> - 16.8	20 30.49	-1.13	29.36	S	<i>c</i> - 7.8 <i>b</i> - 2.0 <i>a</i> - 49.3	20 19.15	-1.87	17.28	12.08			
	3583	+10 46	S	<i>s</i>	22 2.70	-1.12	1.58	S	<i>s</i>	21 51.43	-1.86	49.57	12.01			
	3602	+32 59	N	<i>Q</i> - 1.01	24 14.90	-0.96	13.94	N	<i>Q</i> - 1.38	24 3.37	-1.43	1.94	12.00			
	3609	+9 55	S		25 41.26	-1.13	40.13	S		25 30.01	-1.88	28.13	12.00			
	3622	+9 16	S		27 56.07	-1.13	54.94	S		27 44.89	-1.89	43.00	11.94			
	3633	+34 41	N		30 16.04	-0.94	15.10	N		30 4.53	-1.39	3.14	11.96			
				Mean, $T_E$	10 23 8											

NOTE. 1<sup>d</sup> = 0.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND HAZARIBAGH (W) Lat. 24° 0', Long. 5 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Hearnside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .030 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .042	δL <sub>N</sub> - ρ
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 25	3109	+ 30 8	N	<i>I. P. W.</i>	9 1 39.14	+ 1.00	40.14	N	<i>I. P. W.</i>	9 15 5.41	+ 1.55	6.96	13 26.82				
	3117	+ 22 31	S	<i>d</i>	3 18.46	+ 0.98	19.44	S	<i>d</i>	16 44.78	+ 1.43	46.21	26.77				
	3123	+ 22 29	S	<i>c</i> + 0.0 <i>b</i> - 0.3 <i>a</i> - 5.7	4 18.05	+ 0.98	19.03	S	<i>c</i> + 0.4 <i>b</i> + 3.4 <i>a</i> - 33.5	17 44.43	+ 1.43	45.86	26.83	<i>m s</i> 13 26.823	+ 0.116	+ 0.009	13 26.948
	3129	+ 18 32	S	<i>s</i> <i>Q</i> + 1.00	6 3.13	+ 0.97	4.10	S	<i>s</i> <i>Q</i> + 1.36	19 29.60	+ 1.37	30.97	26.87				
Feb. 25	3178	+ 34 53	N	<i>I. P. W.</i>	9 14 37.95	- 0.99	36.96	N	<i>I. P. W.</i>	9 28 4.95	- 1.09	3.86	13 26.90				
	3194	+ 25 41	N	<i>d</i>	17 28.10	- 1.01	27.09	N	<i>d</i>	30 55.11	- 1.25	53.86	26.77				
	3204	+ 26 41	N	<i>c</i> + 0.0 <i>b</i> - 0.3 <i>a</i> - 5.7	18 31.90	- 1.01	31.89	N	<i>c</i> + 0.4 <i>b</i> + 3.4 <i>a</i> - 33.5	31 59.92	- 1.22	58.70	26.81	<i>m s</i> 13 26.801	+ 0.116	+ 0.003	13 26.922
	3209	+ 17 6	S	<i>s</i>	19 46.17	- 1.03	45.14	S	<i>s</i>	33 13.27	- 1.37	11.90	26.76				
	3227	+ 9 34	S	<i>Q</i> - 1.00	22 54.05	- 1.05	53.00	S	<i>Q</i> - 1.36	36 21.23	- 1.46	19.77	26.77				
	3238	+ 34 10	N		24 21.25	- 0.99	20.26	N		37 48.17	- 1.10	47.07	26.81				
	3246	+ 23 29	S		25 45.06	- 1.02	44.04	S		39 12.11	- 1.28	10.83	26.79				
Mar. 1	3068	+ 32 43	N	<i>I. P. W.</i>	8 54 4.42	+ 1.06	5.48	N	<i>I. P. W.</i>	9 7 30.83	+ 1.52	32.35	13 26.87				
	3079	+ 24 55	N	<i>d</i>	55 44.79	+ 1.00	45.79	N	<i>d</i>	9 11.23	+ 1.35	12.58	26.79				
			S	<i>c</i> + 2.1 <i>b</i> - 2.1 <i>a</i> - 18.8	55 44.78	+ 1.00	45.78	S	<i>c</i> + 0.1 <i>b</i> - 1.5 <i>a</i> - 48.2	9 11.17	+ 1.35	12.52	26.74				
	3088	+ 28 22	N	<i>s</i>	57 2.36	+ 1.03	3.39	N	<i>s</i>	10 28.73	+ 1.43	30.16	26.77				
	3097	+ 38 55	N	<i>Q</i> + 1.01	58 55.82	+ 1.13	56.95	N	<i>Q</i> + 1.37	12 22.06	+ 1.69	23.75	26.80	<i>m s</i> 13 26.762	+ 0.114	+ 0.005	13 26.881
	3109	+ 30 8	N		9 0 49.35	+ 1.04	50.39	N		14 15.73	+ 1.46	17.19	26.80				
	3117	+ 22 31	S		2 28.84	+ 0.98	29.82	S		15 55.22	+ 1.30	56.52	26.70				
	3123	+ 22 29	S		3 28.45	+ 0.98	29.43	S		16 54.86	+ 1.30	56.16	26.73				
	3129	+ 18 32	S		5 13.58	+ 0.95	14.53	S		18 39.97	+ 1.22	41.19	26.66				

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $H_N - H_S = + 0.030$ $S_N - S_S = + 0.042$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882 Mar. 1	3170	+ 26 45	N	I. P. W. $d$	9 12 17.63	-1.01	16.62	N	I. P. W. $d$	9 25 44.70	-1.35	43.35	13 26.73			
	3178	+ 34 53	N	$c + 2.1$ $d$	13 48.18	-0.93	47.25	N	$c + 0.1$ $d$	27 15.24	-1.16	14.08	26.83			
	3194	+ 25 41	N	$b - 2.1$ $a - 18.8$	16 38.44	-1.02	37.42	N	$b - 1.5$ $a - 48.2$	30 5.44	-1.38	4.06	26.64			
	3209	+ 17 6	S	$s$ $Q - 1.01$	18 56.41	-1.08	55.33	S	$s$ $Q - 1.37$	32 23.66	-1.55	22.11	26.78			
Mar. 2	8068	+ 32 43	N	I. P. W. $d$	8 53 52.09	+1.11	53.20	N	I. P. W. $d$	9 7 18.65	+1.58	20.23	13 27.03			
	3079	+ 24 55	N	$c + 2.9$ $d$	55 32.49	+1.06	33.55	N	$c + 1.5$ $d$	8 59.13	+1.41	60.54	26.99			
	3088	+ 28 22	N	$b - 0.6$ $a - 14.5$	55 32.47	+1.06	33.53	S	$b - 0.7$ $a - 46.7$	8 59.01	+1.41	60.42	26.89			
	8097	+ 38 55	N	$s$ $Q + 1.01$	56 50.07	+1.08	51.15	N	$s$ $Q + 1.37$	10 16.59	+1.48	18.07	26.92			
	8109	+ 30 8	N		9 0 37.15	+1.09	38.24	N		12 9.94	+1.74	11.68	26.98			
	8117	+ 22 31	S		2 16.57	+1.05	17.62	S		15 43.06	+1.36	44.42	26.80			
	8123	+ 22 29	S		3 16.22	+1.05	17.27	S		16 42.75	+1.36	44.11	26.84			
	8129	+ 18 32	S		5 1.24	+1.02	2.26	S		18 27.90	+1.28	29.18	26.92			
Mar. 2	3170	+ 26 45	N	I. P. W. $d$	9 12 5.43	-0.96	4.47	N	I. P. W. $d$	9 25 32.61	-1.29	31.32	13 26.85			
	3178	+ 34 53	N	$c + 2.9$ $d$	13 36.06	-0.99	35.17	N	$c + 1.5$ $d$	27 3.03	-1.11	1.92	26.75			
	3194	+ 25 41	N	$b - 0.6$ $a - 14.5$	16 26.14	-0.97	25.17	N	$b - 0.7$ $a - 46.7$	29 53.33	-1.32	52.01	26.84			
	3204	+ 26 41	N	$s$ $Q - 1.01$	17 30.95	-0.96	29.99	N	$s$ $Q - 1.37$	30 58.06	-1.30	56.76	26.77			
	3209	+ 17 6	S		18 44.25	-1.01	43.24	S		32 11.56	-1.48	10.08	26.84			
	3227	+ 9 34	S		21 52.17	-1.05	51.12	S		35 19.57	-1.63	17.94	26.82			
	3238	+ 34 10	N		23 19.36	-0.90	18.46	N		36 46.38	-1.12	45.26	26.80			
	3246	+ 23 29	S		24 43.27	-0.97	42.30	S		38 10.41	-1.36	9.05	26.75			

NOTE.  $1^d = 0.00225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

**JALPAIGURI (E)** *Lat.* 26° 31', *Long.* 5<sup>h</sup> 55<sup>m</sup> 7<sup>s</sup>; **AND HAZARIBAGH (W)** *Lat.* 24° 0', *Long.* 5<sup>h</sup> 41<sup>m</sup> 39<sup>s</sup>.

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ ; AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 39''$																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs for Persl. Equations $H_N - H_S = + 0^{\circ}.030$ $S_N - S_S = + 0^{\circ}.042$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 4	3170	+26 45	N	<i>I. P. E.</i>	9 11 40.97	-1.08	39.89	N	<i>I. P. E.</i>	9 25 8.46	-1.42	7.04	13 27.15			
	3178	+34 53	N	<i>c - d</i>	13 11.60	-1.02	10.58	N	<i>c - d</i>	26 39.01	-1.24	37.77	27.19			
	3194	+25 41	N	<i>b - a</i>	16 1.71	-1.09	0.62	N	<i>b - a</i>	29 29.19	-1.45	27.74	27.12			
	3204	+26 41	N	<i>s</i>	17 6.49	-1.08	5.41	N	<i>s</i>	30 34.01	-1.43	32.58	27.17			
	3209	+17 6	S	<i>Q - 1.01</i>	18 19.75	-1.15	18.60	S	<i>Q - 1.36</i>	31 47.39	-1.61	45.78	27.18			
	3227	+9 34	S		21 27.70	-1.21	26.49	S		34 55.38	-1.74	53.64	27.15			
	3238	+34 10	N		22 54.89	-1.02	53.87	N		36 22.28	-1.25	21.03	27.16			
	3246	+23 29	S		24 18.72	-1.10	17.62	S		37 46.22	-1.48	44.74	27.12			
Mar. 5	3068	+32 43	N	<i>I. P. E.</i>	8 53 14.38	+1.06	15.44	N	<i>I. P. E.</i>	9 6 40.81	+1.32	42.13	13 26.60			
	3079	+24 55	N	<i>c - d</i>	54 54.66	+0.99	55.65	N	<i>c - d</i>	8 21.26	+1.15	22.41	26.76			
	3088	+28 22	N	<i>b - a</i>	54 54.67	+0.99	55.66	S	<i>b - a</i>	8 21.17	+1.15	22.32	26.66			
	3097	+38 55	N	<i>s</i>	56 12.20	+1.03	13.23	N	<i>s</i>	9 38.83	+1.23	40.06	26.83			
	3109	+30 8	N	<i>Q + 1.01</i>	58 5.79	+1.12	6.91	N	<i>Q + 1.38</i>	11 32.22	+1.46	33.68	26.77			
	3117	+22 31	S		9 1 38.76	+0.97	39.73	S		13 25.84	+1.27	27.11	26.74			
	3123	+22 29	S		2 38.36	+0.97	39.33	S		15 5.31	+1.11	6.42	26.60			
	3129	+18 32	S		4 23.34	+0.94	24.28	S		16 4.96	+1.11	6.07	26.74			
Mar. 5	3170	+26 45	N	<i>I. P. E.</i>	9 11 27.60	-1.01	26.59	N	<i>I. P. E.</i>	9 24 54.91	-1.57	53.34	13 26.75			
	3178	+34 53	N	<i>c - d</i>	12 58.22	-0.94	57.28	N	<i>c - d</i>	26 25.49	-1.38	24.11	26.83			
	3194	+25 41	N	<i>b - a</i>	15 48.31	-1.02	47.29	N	<i>b - a</i>	29 15.68	-1.60	14.08	26.79			
	3204	+26 41	N	<i>s</i>	16 53.16	-1.01	52.15	N	<i>s</i>	30 20.46	-1.58	18.88	26.73			
	3209	+17 6	S	<i>Q - 1.01</i>	18 6.41	-1.08	5.33	S	<i>Q - 1.38</i>	31 33.87	-1.76	32.11	26.78			
	3227	+9 34	S		21 14.22	-1.13	13.09	S		34 41.86	-1.88	39.98	26.89			
	3238	+34 10	N		22 41.49	-0.95	40.54	N		36 8.76	-1.40	7.36	26.82			
	3246	+23 29	S		24 5.34	-1.04	4.30	S		37 32.81	-1.63	31.18	26.88			

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*JALPAIGURI (E) *Lat.* 26° 31', *Long.* 5<sup>h</sup> 55<sup>m</sup> 7<sup>s</sup>: AND HAZARIBAGH (W) *Lat.* 24° 0', *Long.* 5<sup>h</sup> 41<sup>m</sup> 39<sup>s</sup>.

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $\Pi_N - \Pi_S = + 0^{\circ}.030$ $S_N - S_S = + 0^{\circ}.042$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 25	3824	+ 15 3	S	<i>I. P. W.</i>	10 51 39.98	+ 0.96	40.94	S	<i>I. P. W.</i>	11 5 6.66	+ 1.33	7.99	13 27.05				
	3834	+ 21 11	S	<i>d</i>	53 57.43	+ 0.98	58.41	S	<i>d</i>	7 24.06	+ 1.41	25.47	27.06				
	3842	+ 23 45	S	<i>c</i> - 0.3 <i>a</i> - 5.7	55 3.18	+ 0.98	4.16	S	<i>c</i> + 0.4 <i>b</i> + 3.4 <i>a</i> - 33.5	8 29.82	+ 1.45	31.27	27.11				
	3851	+ 32 12	N	<i>s</i>	58 0.85	+ 1.00	1.85	N	<i>s</i>	11 27.25	+ 1.59	28.84	26.99				
	3863	+ 7 17	S	<i>Q</i> + 1.00	11 1 30.52	+ 0.95	31.47	S	<i>Q</i> + 1.36	14 57.26	+ 1.22	58.48	27.01				
Feb. 25	3915	+ 19 4	S	<i>I. P. W.</i>	11 10 29.03	- 1.03	28.00	S	<i>I. P. W.</i>	11 23 56.34	- 1.34	55.00	13 27.00				
	3937	+ 28 26	N	<i>d</i>	16 14.93	- 1.00	13.93	N	<i>d</i>	29 42.03	- 1.19	40.84	26.91				
	3952	+ 44 17	N	<i>c</i> - 0.0 <i>b</i> - 0.3 <i>a</i> - 5.7	18 12.81	- 0.95	11.86	N	<i>c</i> + 0.4 <i>b</i> + 3.4 <i>a</i> - 33.5	31 39.77	- 0.88	38.89	27.03				
	3964	+ 22 1	S	<i>s</i>	20 48.40	- 1.02	47.38	S	<i>s</i>	34 15.65	- 1.30	14.35	26.97				
	3973	+ 42 23	N	<i>Q</i> - 1.00	23 31.90	- 0.96	30.94	N	<i>Q</i> - 1.36	36 58.81	- 0.93	57.88	26.94				
	3979	+ 8 55	S		25 21.57	- 1.05	20.52	S		38 48.92	- 1.48	47.44	26.92				
	3990	+ 20 53	S		28 3.30	- 1.02	2.28	S		41 30.54	- 1.32	29.22	26.94				
	3998	+ 35 36	N		29 43.24	- 0.98	42.26	N		43 10.28	- 1.07	9.21	26.95				
Mar. 1	3797	+ 26 11	N	<i>I. P. W.</i>	10 46 30.29	+ 1.01	31.30	N	<i>I. P. W.</i>	10 59 56.91	+ 1.37	58.28	13 26.98				
	3824	+ 15 3	S	<i>d</i>	51 18.52	+ 0.92	19.44	S	<i>d</i>	11 4 45.14	+ 1.17	46.31	26.87				
	3834	+ 21 11	S	<i>c</i> + 2.1 <i>b</i> - 2.1 <i>a</i> - 18.8	53 35.94	+ 0.97	36.91	S	<i>c</i> + 0.1 <i>b</i> - 1.5 <i>a</i> - 48.2	7 2.51	+ 1.27	3.78	26.87				
	3842	+ 23 45	S	<i>s</i>	54 41.65	+ 0.99	42.64	S	<i>s</i>	8 8.19	+ 1.33	9.52	26.88				
	3851	+ 32 12	N	<i>Q</i> + 1.01	57 39.16	+ 1.06	40.22	N	<i>Q</i> + 1.37	11 5.68	+ 1.51	7.19	26.97				
	3863	+ 7 17	S		11 1 9.00	+ 0.88	9.88	S		14 35.72	+ 1.03	36.75	26.87				

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND HAZARIBAGH (W) Lat. 24° 0', Long. 6 <sup>h</sup> 41 <sup>m</sup> 39 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.030$ $S_N - S_S = + 0^s.042$	$\delta L_N + \rho$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 1	3915	+19 4	S	<i>I. P. W.</i>	11 10 7.44	-1.07	6.37	S	<i>I. P. W.</i>	11 23 34.79	-1.51	33.28	13 26.91				
				<i>d</i>					<i>d</i>								
	3937	+28 26	N	<i>c + 2.1</i>	15 53.14	-0.99	52.15	N	<i>c + 0.1</i>	29 20.47	-1.31	19.16	27.01				
				<i>b - 2.1</i>					<i>b - 1.5</i>								
	3952	+44 17	N	<i>a - 18.8</i>	17 51.02	-0.82	50.20	N	<i>a - 48.2</i>	31 18.08	-0.88	17.20	27.00				
				<i>s</i>					<i>s</i>								
	3964	+22 1	S	<i>Q - 1.01</i>	20 26.75	-1.05	25.70	S	<i>Q - 1.37</i>	33 54.00	-1.45	52.55	26.85				
3973	+42 23	N		23 10.07	-0.85	9.22	N		36 37.15	-0.94	36.21	26.99					
3979	+ 8 55	S		24 59.89	-1.14	58.75	S		38 27.40	-1.68	25.72	26.97					
3990	+20 53	S		27 41.64	-1.06	40.58	S		41 8.97	-1.48	7.49	26.91					
3998	+35 36	N		29 21.47	-0.93	20.54	N		42 48.67	-1.14	47.53	26.99					
Mar. 2	3834	+21 11	S	<i>I. P. W.</i>	10 53 29.52	+1.04	30.56	S	<i>I. P. W.</i>	11 6 56.20	+1.33	57.53	13 26.97				
				<i>d</i>					<i>d</i>								
	3842	+23 45	S	<i>c + 2.9</i>	54 35.24	+1.05	36.29	S	<i>c + 1.5</i>	8 1.92	+1.39	3.31	27.02				
				<i>b - 0.6</i>					<i>b - 0.7</i>								
	3851	+32 12	N	<i>a - 14.5</i>	57 32.78	+1.11	33.89	N	<i>a - 46.7</i>	10 59.37	+1.57	60.94	27.05				
3863	+ 7 17	S	<i>s</i>	11 1 2.52	+0.96	3.48	S	<i>s</i>	14 29.44	+1.08	30.52	27.04					
			<i>Q + 1.01</i>					<i>Q + 1.37</i>									
Mar. 2	3915	+19 4	S	<i>I. P. W.</i>	11 9 60.96	-0.99	59.97	S	<i>I. P. W.</i>	11 23 28.54	-1.45	27.09	13 27.12				
				<i>d</i>					<i>d</i>								
	3952	+44 17	N	<i>c + 2.9</i>	17 44.72	-0.80	43.92	N	<i>c + 1.5</i>	31 11.85	-0.83	11.02	27.10				
				<i>b - 0.6</i>					<i>b - 0.7</i>								
	3964	+22 1	S	<i>a - 14.5</i>	20 20.30	-0.98	19.32	S	<i>a - 46.7</i>	33 47.80	-1.39	46.41	27.09				
				<i>s</i>					<i>s</i>								
3973	+42 23	N	<i>Q - 1.01</i>	23 3.72	-0.82	2.90	N	<i>Q - 1.37</i>	36 30.86	-0.89	29.97	27.07					
3990	+20 53	S		27 35.20	-0.98	34.22	S		41 2.74	-1.42	1.32	27.10					
Mar. 3	8787	+25 51	S	<i>I. P. E.</i>	10 44 30.91	+0.98	31.89	S	<i>I. P. E.</i>	10 57 57.87	+1.23	59.10	13 27.21				
				<i>d</i>					<i>d</i>								
				<i>c - 0.8</i>	44 31.04	+0.98	32.02	N	<i>c - 5.6</i>	57 57.80	+1.23	59.03	27.01				
	8797	+26 11	N	<i>b - 0.3</i>	46 17.71	+0.98	18.69	N	<i>b - 1.5</i>	59 44.59	+1.23	45.82	27.13				
				<i>a - 10.1</i>					<i>a - 47.8</i>								
	8811	+36 57	N	<i>s</i>	48 23.03	+1.06	24.09	N	<i>s</i>	11 1 49.81	+1.47	51.28	27.19				
				<i>Q + 1.01</i>					<i>Q + 1.37</i>								
	3824	+15 3	S		51 5.80	+0.90	6.70	S		4 32.77	+1.04	33.81	27.11				
	3834	+21 11	S		53 23.28	+0.94	24.22	S		6 50.17	+1.14	51.31	27.09				
3842	+23 45	S		54 29.01	+0.96	29.97	S		7 55.94	+1.19	57.13	27.16					
3851	+32 12	N		57 26.53	+1.02	27.55	N		10 53.46	+1.36	54.82	27.27					
3863	+ 7 17	S		11 0 56.29	+0.86	57.15	S		14 23.49	+0.90	24.39	27.24					

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $5^h 41^m 39^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $H_N - H_S = + 0^s.030$ $S_N - S_S = + 0^s.042$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correc- ed Time	By each Star	Mean of Group		
1882		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 3	3915	+19 4	S	<i>I. P. E.</i>	11 9 54.84	-1.09	53.75	S	<i>I. P. E.</i>	11 23 22.52	-1.64	20.88	13 27.13			
	3937	+28 26	N	<i>d</i>	15 40.68	-1.03	39.65	N	<i>d</i>	29 8.16	-1.46	6.70	27.05			
	3952	+44 17	N	<i>a - 0.8</i> <i>b - 0.3</i> <i>a - 16.1</i>	17 38.55	-0.88	37.67	N	<i>a - 5.6</i> <i>b - 1.5</i> <i>a - 47.8</i>	31 5.89	-1.05	4.84	27.17			
	3964	+22 1	S	<i>s</i>	20 14.19	-1.07	13.12	S	<i>s</i>	33 41.77	-1.58	40.19	27.07			
	3973	+42 23	N	<i>Q - 1.01</i>	22 57.60	-0.91	56.69	N	<i>Q - 1.37</i>	36 24.96	-1.12	23.84	27.15			
	3979	+8 55	S		24 47.31	-1.15	46.16	S		38 15.13	-1.81	13.32	27.16			
	3990	+20 53	S		27 29.08	-1.08	28.00	S		40 56.74	-1.61	55.13	27.13			
	3998	+35 36	N		29 8.95	-0.97	7.98	N		42 36.52	-1.30	35.22	27.24			
Mar. 4	3787	+25 51	S	<i>I. P. E.</i>	10 44 26.20	+0.94	27.14	S	<i>I. P. E.</i>	10 57 53.11	+1.28	54.39	13 27.25			
	3797	+26 11	N	<i>d</i>	44 26.23	+0.94	27.17	N	<i>d</i>	57 53.11	+1.28	54.39	27.22			
	3811	+36 57	N	<i>a - 2.1</i> <i>b - 0.7</i> <i>a - 18.7</i>	46 12.89	+0.94	13.83	N	<i>a - 5.6</i> <i>b + 0.7</i> <i>a - 48.1</i>	59 39.83	+1.28	41.11	27.28			
	3824	+15 3	S	<i>s</i>	48 18.35	+1.03	19.38	N	<i>s</i>	11 1 45.04	+1.52	46.56	27.18			
	3834	+21 11	S	<i>Q + 1.01</i>	51 1.05	+0.85	1.90	S	<i>Q + 1.36</i>	4 28.08	+1.08	29.16	27.26			
	3842	+23 45	S		53 18.63	+0.90	19.53	S		6 45.46	+1.19	46.65	27.12			
	3851	+32 12	N		54 24.33	+0.92	25.25	S		7 51.24	+1.24	52.48	27.23			
	3863	+7 17	S		57 21.90	+0.98	22.88	N		10 48.65	+1.41	50.06	27.18			
Mar. 4	3915	+19 4	S	<i>I. P. E.</i>	11 9 50.04	-1.14	48.90	S	<i>I. P. E.</i>	11 23 17.86	-1.57	16.29	13 27.39			
	3937	+28 26	N	<i>d</i>	15 35.83	-1.06	34.77	N	<i>d</i>	29 3.58	-1.39	2.19	27.42			
	3952	+44 17	N	<i>a - 2.1</i> <i>b - 0.7</i> <i>a - 18.7</i>	17 33.76	-0.92	32.84	N	<i>a - 5.6</i> <i>b + 0.7</i> <i>a - 48.1</i>	31 1.21	-0.98	0.23	27.39			
	3964	+22 1	S	<i>s</i>	20 9.30	-1.12	8.18	S	<i>s</i>	33 37.15	-1.51	35.64	27.46			
	3973	+42 23	N	<i>Q - 1.01</i>	22 52.80	-0.93	51.87	N	<i>Q - 1.36</i>	36 20.36	-1.04	19.32	27.45			
	3979	+8 55	S		24 42.48	-1.21	41.27	S		38 10.54	-1.75	8.79	27.52			
	3990	+20 53	S		27 24.26	-1.12	23.14	S		40 52.18	-1.54	50.64	27.50			
	3998	+35 36	N		29 4.26	-1.01	3.25	N		42 31.90	-1.23	30.67	27.42			

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation  $\pi d$ , all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ : AND HAZARIBAGH (W) Lat. $24^{\circ} 0'$ , Long. $85^{\circ} 41' 59''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.030$ $S_N - S_S = + 0^{\circ}.042$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 5	3787	+ 25 51	S	<i>I. P. E.</i>	10 44 21.78	+ 1.01	22.79	S	<i>I. P. E.</i>	10 57 48.66	+ 1.17	49.83	13 27.04			
	3797	+ 26 11	N	<i>c - d</i> <i>b + 0.7</i>	46 8.38	+ 1.01	9.39	N	<i>c - d</i> <i>b - 7.8</i>	59 35.34	+ 1.17	36.51	27.12			
	3811	+ 36 57	N	<i>a - 16.8</i>	48 13.81	+ 1.10	14.91	N	<i>a - 49.3</i>	11 1 40.59	+ 1.42	42.01	27.10			
	3824	+ 15 3	S	<i>Q + 1.01</i>	50 56.52	+ 0.92	57.44	S	<i>Q + 1.38</i>	4 23.68	+ 0.97	24.65	27.21			
	3834	+ 21 11	S		53 13.90	+ 0.96	14.86	S		6 41.03	+ 1.08	42.11	27.25			
	3842	+ 23 45	S		54 19.69	+ 0.98	20.67	S		7 46.76	+ 1.13	47.89	27.22			
	3851	+ 32 12	N		57 17.32	+ 1.05	18.37	N		10 44.23	+ 1.31	45.54	27.17			
	3863	+ 7 17	S		11 0 47.04	+ 0.87	47.91	S		14 14.38	+ 0.84	15.22	27.31			
													<i>m s</i> 13 27.178		+ 0.042	
																+ 0.008
																13 27.228
Mar. 5	3915	+ 19 4	S	<i>I. P. E.</i>	11 9 45.64	- 1.07	44.57	S	<i>I. P. E.</i>	11 23 13.32	- 1.72	11.60	13 27.03			
	3937	+ 28 26	N	<i>c - d</i> <i>b + 0.7</i>	15 31.36	- 0.99	30.37	N	<i>c - d</i> <i>b - 7.8</i>	28 59.04	- 1.53	57.51	27.14			
	3952	+ 44 17	N	<i>a - 16.8</i>	17 29.39	- 0.85	28.54	N	<i>a - 49.3</i>	30 56.72	- 1.14	55.58	27.04			
	3964	+ 22 1	S	<i>Q - 1.01</i>	20 4.87	- 1.05	3.82	S	<i>Q - 1.38</i>	33 32.66	- 1.66	31.00	27.18			
	3973	+ 42 23	N		22 48.43	- 0.87	47.56	N		36 15.92	- 1.19	14.73	27.17			
	3979	+ 8 55	S		24 38.21	- 1.14	37.07	S		38 6.04	- 1.89	4.15	27.08			
	3990	+ 20 53	S		27 19.85	- 1.06	18.79	S		40 47.57	- 1.69	45.88	27.09			
	3998	+ 35 36	N		28 59.84	- 0.94	58.90	N		42 27.41	- 1.37	26.04	27.14			
													<i>m s</i> 13 27.109		+ 0.042	
																+ 0.006
																13 27.157

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .007	M <sub>N</sub>
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.17	3787	+ 25 51	N	<i>I. P. E.</i>	10 59 18.25	+ 0.89	19.14	N	<i>I. P. W.</i>	10 59 35.13	+ 1.17	36.30	+ 0 17.16				
	3797	+ 26 11	N	<i>d</i>	11 1 4.92	+ 0.89	5.81	N	<i>d</i>	11 1 21.72	+ 1.18	22.90	17.09				
	3811	+ 36 57	N	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	3 10.41	+ 0.87	11.28	N	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	3 26.49	+ 1.79	28.28	17.00				
	3824	+ 15 3	S	<i>s</i>	5 52.95	+ 0.92	53.87	S	<i>s</i>	6 10.25	+ 0.67	10.92	17.05				
	3834	+ 21 11	S	<i>Q + 1.01</i>	8 10.48	+ 0.92	11.40	S	<i>Q + 1.06</i>	8 27.49	+ 0.95	28.44	17.04				
	3843	+ 13 57	S		10 2.00	+ 0.92	2.92	S		10 19.33	+ 0.64	19.97	17.05				
	3851	+ 32 12	N		12 13.87	+ 0.87	14.74	N		12 30.31	+ 1.50	31.81	17.07				
	3863	+ 7 17	S		15 43.41	+ 0.93	44.34	S		16 1.08	+ 0.36	1.44	17.10				
				Mean, T <sub>E</sub>	11 6 57												
Mar.17	3913	+ 43 49	N	<i>I. P. E.</i>	11 24 30.55	- 1.17	29.38	N	<i>I. P. W.</i>	11 24 46.48	+ 0.15	46.63	+ 0 17.25				
	3919	+ 15 1	S	<i>d</i>	26 1.57	- 1.10	0.47	S	<i>d</i>	26 19.25	- 1.45	17.80	17.33				
	3932	+ 17 27	S	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	28 56.18	- 1.10	55.08	S	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	29 13.68	- 1.34	12.34	17.26				
	3937	+ 28 26	N	<i>s</i>	30 27.76	- 1.13	26.63	N	<i>s</i>	30 44.64	- 0.82	43.82	17.19				
	3952	+ 44 17	N	<i>Q - 1.01</i>	32 25.81	- 1.17	24.64	N	<i>Q - 1.06</i>	32 41.69	+ 0.19	41.88	17.24				
	3964	+ 22 1	S		35 1.26	- 1.11	0.15	S		35 18.44	- 1.12	17.32	17.17				
	3973	+ 42 23	N		37 44.84	- 1.17	43.67	N		38 0.91	+ 0.04	0.95	17.28				
	3979	+ 8 55	S		39 34.24	- 1.09	33.15	S		39 52.16	- 1.69	50.47	17.32				
				Mean, T <sub>E</sub>	11 31 50												
Mar.19	3787	+ 25 51	N	<i>I. P. E.</i>	10 58 52.82	+ 1.14	53.96	N	<i>I. P. W.</i>	10 59 28.65	+ 1.18	29.83	+ 0 35.87				
	3797	+ 26 11	N	<i>d</i>	11 0 39.46	+ 1.13	40.59	N	<i>d</i>	11 1 15.26	+ 1.18	16.44	35.85				
	3811	+ 36 57	N	<i>c - 0.1</i> <i>b + 3.9</i> <i>a + 14.7</i>	2 44.98	+ 1.07	46.05	N	<i>c + 4.3</i> <i>b - 2.9</i> <i>a - 36.2</i>	3 20.47	+ 1.38	21.85	35.80				
	3824	+ 15 3	S	<i>s</i>	5 27.42	+ 1.19	28.61	S	<i>s</i>	6 3.44	+ 1.01	4.45	35.84				
	3834	+ 21 11	S	<i>Q + 1.03</i>	7 44.95	+ 1.15	46.10	S	<i>Q + 1.09</i>	8 20.81	+ 1.10	21.91	35.81				
	3843	+ 13 57	S		9 36.45	+ 1.19	37.64	S		10 12.56	+ 1.00	13.56	35.92				
	3851	+ 32 12	N		11 48.40	+ 1.09	49.49	N		12 24.08	+ 1.29	25.37	35.88				
	3863	+ 7 17	S		15 17.88	+ 1.22	19.10	S		15 54.12	+ 0.91	55.03	35.93				
				Mean, T <sub>E</sub>	11 6 32												

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation #17, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ ; AND CALCUTTA (W) Lat. $22^{\circ} 53'$ , Long. $88^{\circ} 53' 36''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.052$ $S_N - S_S = + 0^{\circ}.007$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group		
	B. A. C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time				$M_N$
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 19	3913	+43 49	N	<i>I. P. E.</i>	11 24 5' 24	-1' 05	4' 19	N	<i>I. P. W.</i>	11 24 40' 72	-0' 63	40' 09	+0 35' 90			
	3919	+15 1	S	<i>c - 0' 1</i> <i>d</i>	25 36' 29	-0' 87	35' 42	S	<i>c + 4' 3</i> <i>d</i>	26 12' 56	-1' 17	11' 39	35' 97			
	3932	+17 27	S	<i>b + 3' 9</i> <i>a + 14' 7</i>	28 30' 86	-0' 89	29' 97	S	<i>b - 2' 9</i> <i>a - 36' 2</i>	29 7' 04	-1' 14	5' 90	35' 93			
	3937	+28 26	N	<i>Q - 1' 03</i>	30 2' 36	-0' 94	1' 42	N	<i>Q - 1' 09</i>	30 38' 33	-0' 96	37' 37	35' 95			
	3952	+44 17	N		31 60' 53	-1' 05	59' 48	N		32 36' 02	-0' 62	35' 40	35' 92			
	3964	+22 1	S		34 35' 77	-0' 91	34' 86	S		35 11' 93	-1' 06	10' 87	36' 01			
	3973	+42 23	N		37 19' 54	-1' 04	18' 50	N		37 55' 16	-0' 66	54' 50	36' 00			
	3979	+ 8 55	S		39 8' 91	-0' 85	8' 06	S		39 45' 31	-1' 24	44' 07	36' 01			
				Mean, $T_E$	11 31 25											
Mar. 22	3787	+25 51	S	<i>I. P. E.</i>	10 58 16' 71	+0' 97	17' 68	N	<i>I. P. W.</i>	10 59 18' 82	+1' 25	20' 07	+1 2' 39			
	3797	+26 11	N	<i>c - 3' 6</i> <i>d</i>	11 0 3' 41	+0' 97	4' 38	N	<i>c + 5' 4</i> <i>d</i>	11 1 5' 48	+1' 25	6' 73	2' 35			
	3811	+36 57	N	<i>b + 1' 9</i> <i>a + 4' 8</i>	2 8' 88	+0' 94	9' 82	N	<i>b - 1' 1</i> <i>a - 26' 8</i>	3 10' 75	+1' 41	12' 16	2' 34			
	3824	+15 3	S	<i>Q + 1' 01</i>	4 51' 39	+0' 99	52' 38	S	<i>Q + 1' 10</i>	5 53' 66	+1' 11	54' 77	2' 39			
	3834	+21 11	S		7 8' 95	+0' 98	9' 93	S		8 11' 09	+1' 19	12' 28	2' 35			
	3843	+13 57	S		9 0' 41	+0' 99	1' 40	S		10 2' 71	+1' 10	3' 81	2' 41			
	3851	+32 12	N		11 12' 34	+0' 95	13' 29	N		12 14' 32	+1' 34	15' 66	2' 37			
				Mean, $T_E$	11 4 40											
Mar. 22	3913	+43 49	N	<i>I. P. E.</i>	11 23 29' 16	-1' 10	28' 06	N	<i>I. P. W.</i>	11 24 31' 10	-0' 65	30' 45	+1 2' 39			
	3932	+17 27	S	<i>c - 3' 6</i> <i>d</i>	27 54' 74	-1' 04	53' 70	S	<i>c + 5' 4</i> <i>d</i>	28 57' 36	-1' 06	56' 30	2' 60			
	3937	+28 26	N	<i>b + 1' 9</i> <i>a + 4' 8</i>	29 26' 23	-1' 05	25' 18	N	<i>b - 1' 1</i> <i>a - 26' 8</i>	30 28' 65	-0' 92	27' 73	2' 55			
	3952	+44 17	N	<i>Q - 1' 01</i>	31 24' 42	-1' 11	23' 31	N	<i>Q - 1' 10</i>	32 26' 38	-0' 65	25' 73	2' 42			
	3964	+22 1	S		33 59' 77	-1' 04	58' 73	S		35 2' 20	-1' 00	1' 20	2' 47			
	3973	+42 23	N		36 43' 42	-1' 10	42' 32	N		37 45' 50	-0' 69	44' 81	2' 49			
	3979	+ 8 55	S		38 32' 81	-1' 02	31' 79	S		39 35' 58	-1' 14	34' 44	2' 65			
				Mean, $T_E$	11 31 39											

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *m*!, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.007$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Apr. 4	4100	+ 27 57	N	<i>I. P. W.</i>	12 5 29.99	+ 1.44	31.43	N	<i>I. P. E.</i>	12 5 32.07	+ 0.81	32.88	+ 0 1.45			
	4107	+ 26 32	N	<i>d</i>	6 35.50	+ 1.45	36.95	N	<i>d</i>	6 37.50	+ 0.82	38.32	1.37			
	4114	+ 10 55	S	<i>c + 1.6</i> <i>b + 4.9</i> <i>a + 20.0</i>	8 8.83	+ 1.56	10.39	S	<i>c - 5.8</i> <i>b - 1.3</i> <i>a + 16.2</i>	8 10.89	+ 0.94	11.83	1.44			
	4125	+ 15 33	S	<i>s</i>	10 44.08	+ 1.53	45.61	S	<i>s</i>	10 46.17	+ 0.92	47.09	1.48			
	4139	+ 26 40	N	<i>Q + 1.29</i>	13 48.56	+ 1.45	50.01	N	<i>Q + 1.03</i>	13 50.71	+ 0.82	51.53	1.52			
	4156	+ 18 27	S		15 28.69	+ 1.52	30.21	S		15 30.88	+ 0.89	31.77	1.56			
	4169	+ 26 30	N		17 17.87	+ 1.45	19.32	N		17 20.08	+ 0.82	20.90	1.58			
				Mean, $T_E$	12 11 5									<i>m s</i> + 0 1.486	+ 0.003	0.219
Apr. 4	4195	+ 28 56	N	<i>I. P. W.</i>	12 21 49.43	- 1.14	48.29	N	<i>I. P. E.</i>	12 21 51.15	- 1.26	49.89	+ 0 1.60			
	4205	+ 26 53	N	<i>d</i>	23 30.59	- 1.13	29.46	N	<i>d</i>	23 32.26	- 1.24	31.02	1.56			
	4228	+ 10 57	S	<i>c + 1.6</i> <i>b + 4.9</i> <i>a + 20.0</i>	27 50.45	- 1.02	49.43	S	<i>c - 5.8</i> <i>b - 1.3</i> <i>a + 16.2</i>	27 52.11	- 1.12	50.99	1.56			
	4240	+ 23 17	S	<i>s</i>	29 44.19	- 1.10	43.09	S	<i>s</i>	29 45.95	- 1.21	44.74	1.65			
	4248	+ 17 45	S	<i>Q - 1.29</i>	31 49.19	- 1.07	48.12	S	<i>Q - 1.03</i>	31 50.93	- 1.17	49.76	1.64			
	4258	+ 41 31	N		33 51.64	- 1.26	50.38	N		33 53.47	- 1.40	52.07	1.69			
	4267	+ 11 5	S		36 23.44	- 1.02	22.42	S		36 25.30	- 1.12	24.18	1.76			
				Mean, $T_E$	12 29 17									<i>m s</i> + 0 1.637	+ 0.003	0.026
Apr. 5	4081	+ 14 10	S	<i>I. P. W.</i>	12 2 4.33	+ 1.55	5.88	S	<i>I. P. E.</i>	12 2 17.23	+ 1.07	18.30	+ 0 12.42			
	4100	+ 27 57	N	<i>d</i>	5 16.57	+ 1.49	18.06	N	<i>d</i>	5 29.53	+ 0.90	30.43	12.37			
	4107	+ 26 32	N	<i>c + 1.5</i> <i>b + 5.3</i> <i>a + 15.9</i>	6 22.09	+ 1.49	23.58	N	<i>c - 4.8</i> <i>b - 1.4</i> <i>a + 25.3</i>	6 34.94	+ 0.92	35.86	12.28			
	4125	+ 15 33	S	<i>s</i>	10 30.73	+ 1.54	32.27	S	<i>s</i>	10 43.53	+ 1.05	44.58	12.31			
	4139	+ 26 40	N	<i>Q + 1.32</i>	13 35.14	+ 1.49	36.63	N	<i>Q + 1.12</i>	13 48.11	+ 0.92	49.03	12.40			
	4156	+ 18 27	S		15 15.29	+ 1.53	16.82	S		15 28.23	+ 1.01	29.24	12.42			
	4169	+ 26 30	N		17 4.52	+ 1.49	6.01	N		17 17.42	+ 0.91	18.33	12.32			
				Mean, $T_E$	12 10 1									<i>m s</i> + 0 12.360	+ 0.003	0.019
																+ 0 12.344

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl Equations $H_N - H_S = + 0^{\circ}.052$ $S_N - S_S = + 0^{\circ}.007$
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Apr. 5	4195	+28 56	N	<i>I. P. W.</i>	12 21 36.06	-1.16	34.90	N	<i>I. P. E.</i>	12 21 48.69	-1.35	47.34	+0 12.44			
	4205	+26 53	N	<i>d</i>	23 17.16	-1.15	16.01	N	<i>d</i>	23 29.78	-1.33	28.45	12.44			
	4218	+10 22	S	<i>c + 1.5</i> <i>b + 5.3</i> <i>a + 15.9</i>	25 6.47	-1.07	5.40	S	<i>c - 4.8</i> <i>b - 1.4</i> <i>a + 25.3</i>	25 19.24	-1.14	18.10	12.70			
	4228	+10 57	S	<i>s</i>	27 36.93	-1.07	35.86	S	<i>s</i>	27 49.66	-1.14	48.52	12.66			
	4240	+23 17	S	<i>Q - 1.32</i>	29 30.70	-1.13	29.57	S	<i>Q - 1.12</i>	29 43.51	-1.28	42.23	12.66			
	4248	+17 45	S		31 35.74	-1.10	34.64	S		31 48.47	-1.22	47.25	12.61			
	4258	+41 31	N		33 38.17	-1.25	36.92	N		33 51.08	-1.55	49.53	12.61			
	4267	+11 5	S		36 9.93	-1.07	8.86	S		36 22.76	-1.14	21.62	12.76			
				Mean, $T_E$	12 28 34											
Apr. 6	4100	+27 57	N	<i>I. P. W.</i>	12 5 3.80	+1.41	5.21	N	<i>I. P. E.</i>	12 5 26.16	+0.81	26.97	+0 21.76			
	4107	+26 32	N	<i>d</i>	6 9.28	+1.42	10.70	N	<i>d</i>	6 31.63	+0.83	32.46	21.76			
	4125	+15 33	S	<i>c + 0.4</i> <i>b + 3.5</i> <i>a + 15.1</i>	10 17.93	+1.48	19.41	S	<i>c - 6.5</i> <i>b - 4.3</i> <i>a + 27.4</i>	10 40.19	+0.98	41.17	21.76			
	4189	+26 40	N	<i>s</i>	13 22.37	+1.42	23.79	N	<i>s</i>	13 44.74	+0.83	45.57	21.78			
	4156	+18 27	S	<i>Q + 1.32</i>	15 2.52	+1.46	3.98	S	<i>Q + 1.15</i>	15 24.88	+0.93	25.81	21.83			
	4169	+26 30	N		16 51.71	+1.42	53.13	N		17 14.13	+0.83	14.96	21.83			
				Mean, $T_E$	12 11 8											
Apr. 6	4195	+28 56	N	<i>I. P. W.</i>	12 21 23.38	-1.24	22.14	N	<i>I. P. E.</i>	12 21 45.42	-1.51	43.91	+0 21.77			
	4205	+26 53	N	<i>d</i>	23 4.46	-1.22	3.24	N	<i>d</i>	23 26.56	-1.47	25.09	21.85			
	4228	+10 57	S	<i>c + 0.4</i> <i>b + 3.5</i> <i>a + 15.1</i>	27 24.10	-1.14	22.96	S	<i>c - 6.5</i> <i>b - 4.3</i> <i>a + 27.4</i>	27 46.33	-1.27	45.06	22.10			
	4240	+23 17	S	<i>s</i>	29 18.08	-1.20	16.88	S	<i>s</i>	29 40.22	-1.43	38.79	21.91			
				<i>Q - 1.32</i>					<i>Q - 1.15</i>							
				Mean, $T_E$	12 25 18											

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

**TABLE IX.** OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 85° 55' 7": AND CALCUTTA (W) Lat. 22° 33', Long. 88° 53' 36".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrus. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> .007	δL <sub>N</sub> - ρ
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.17	3446	+ 35 49	N	<i>I. P. E.</i>	10 0 49.31	+ 0.87	50.18	N	<i>I. P. W.</i>	10 2 18.76	+ 1.71	20.47	1 30.29				
	3457	+ 10 35	S	<i>d</i>	1 59.48	+ 0.93	60.41	S	<i>d</i>	3 30.03	+ 0.49	30.52	30.11				
	3466	+ 41 15	N	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	4 13.31	+ 0.85	14.16	N	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	5 42.33	+ 2.07	44.40	30.24				
	3475	+ 13 56	S	<i>s</i>	5 38.27	+ 0.92	39.19	S	<i>s</i>	7 8.83	+ 0.63	9.46	30.27				
	3485	+ 21 45	S	<i>Q + 1.01</i>	8 21.05	+ 0.91	21.96	S	<i>Q + 1.06</i>	9 51.13	+ 0.97	52.10	30.14				
	3503	+ 29 17	N		10 7.92	+ 0.89	8.81	N		11 37.60	+ 1.35	38.95	30.14				
	3515	+ 44 39	N		12 2.10	+ 0.85	2.95	N		13 30.81	+ 2.33	33.14	30.19				
Mar.17	3583	+ 10 46	S	<i>I. P. E.</i>	10 23 20.08	- 1.10	18.98	S	<i>I. P. W.</i>	10 24 50.76	- 1.63	49.13	1 30.15				
	3602	+ 32 59	N	<i>d</i>	25 32.40	- 1.15	31.25	N	<i>d</i>	27 1.95	- 0.57	1.38	30.13				
	3609	+ 9 55	S	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	26 58.64	- 1.09	57.55	S	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	28 29.34	- 1.65	27.69	30.14				
	3622	+ 9 16	S	<i>s</i>	29 13.43	- 1.09	12.34	S	<i>s</i>	30 44.15	- 1.69	42.46	30.12				
	3641	+ 38 32	N	<i>Q - 1.01</i>	32 45.77	- 1.15	44.62	N	<i>Q - 1.06</i>	34 14.88	- 0.23	14.65	30.03				
	3650	+ 28 8	N		34 11.97	- 1.13	10.84	N		35 41.84	- 0.84	41.00	30.16				
	3666	+ 26 57	N		36 55.97	- 1.13	54.84	N		38 25.79	- 0.89	24.90	30.06				
Mar.19	3434	+ 12 12	S	<i>I. P. E.</i>	9 57 44.76	+ 1.20	45.96	S	<i>I. P. W.</i>	9 59 15.23	+ 0.97	16.20	1 30.24				
	3446	+ 35 49	N	<i>d</i>	10 0 23.95	+ 1.07	25.02	N	<i>d</i>	10 1 53.81	+ 1.36	55.17	30.15				
	3457	+ 10 35	S	<i>c - 0.1</i> <i>b + 3.9</i> <i>a + 14.7</i>	1 34.01	+ 1.21	35.22	S	<i>c + 4.3</i> <i>b - 2.9</i> <i>a - 36.2</i>	3 4.40	+ 0.95	5.35	30.13				
	3466	+ 41 15	N	<i>s</i>	3 48.02	+ 1.03	49.05	N	<i>s</i>	5 17.66	+ 1.49	19.15	30.10				
	3475	+ 13 56	S	<i>Q + 1.03</i>	5 12.92	+ 1.19	14.11	S	<i>Q + 1.09</i>	6 43.27	+ 1.00	44.27	30.16				
	3485	+ 21 45	S		7 55.62	+ 1.15	56.77	S		9 25.75	+ 1.11	26.86	30.09				
	3503	+ 29 17	N		9 42.51	+ 1.11	43.62	N		11 12.44	+ 1.24	13.68	30.06				
3515	+ 44 39	N		11 36.82	+ 1.01	37.83	N		13 6.35	+ 1.58	7.93	30.10					

NOTE. 1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 55 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .007	δ L <sub>N</sub> - ρ
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 19	3583	+ 10 46	S	<i>I. P. E.</i>	10 22 54.56	-0.85	53.71	S	<i>I. P. W.</i>	10 24 25.08	-1.22	23.86	1 30.15				
	3602	+ 32 59	N	<i>d</i>	25 6.99	-0.97	6.02	N	<i>d</i>	26 37.04	-0.87	36.17	30.15				
	3609	+ 9 55	S	<i>c - 0.1</i> <i>b + 3.9</i> <i>a + 14.7</i>	26 33.15	-0.84	32.31	S	<i>c + 4.3</i> <i>b - 2.9</i> <i>a - 36.2</i>	28 3.66	-1.23	2.43	30.12				
	3622	+ 9 16	S	<i>s</i>	28 47.95	-0.85	47.10	S	<i>s</i>	30 18.44	-1.24	17.20	30.10				
	3634	+ 17 54	S	<i>Q - 1.03</i>	31 23.64	-0.89	22.75	S	<i>Q - 1.09</i>	32 54.06	-1.13	52.93	30.18				
	3641	+ 38 32	N		32 20.40	-1.01	19.39	N		33 50.20	-0.76	49.44	30.05				
	3650	+ 28 8	N		33 46.55	-0.94	45.61	N		35 16.74	-0.96	15.78	30.17				
	3666	+ 26 57	N		36 30.53	-0.93	29.60	N		37 60.62	-0.98	59.64	30.04				
													<i>m s</i>				
													1 30.120				
														+ 0.013			
															-		
																1 30.110	
Mar. 22	3446	+ 35 49	N	<i>I. P. E.</i>	9 59 47.80	+0.94	48.74	N	<i>I. P. W.</i>	10 1 17.64	+1.39	19.03	1 30.29				
	3457	+ 10 35	S	<i>d</i>	10 0 57.88	+1.00	58.88	S	<i>d</i>	2 28.13	+1.07	29.20	30.32				
	3466	+ 41 15	N	<i>c - 3.6</i> <i>b + 1.9</i> <i>a + 4.8</i>	3 11.93	+0.91	12.84	N	<i>c + 5.4</i> <i>b - 1.1</i> <i>a - 26.8</i>	4 41.55	+1.49	43.04	30.20				
	3485	+ 21 45	S	<i>s</i>	7 19.51	+0.98	20.49	S	<i>s</i>	8 49.53	+1.19	50.72	30.23				
	3503	+ 29 17	N	<i>Q + 1.01</i>	9 6.45	+0.96	7.41	N	<i>Q + 1.10</i>	10 36.25	+1.29	37.54	30.13				
	3515	+ 44 39	N		11 0.67	+0.90	1.57	N		12 30.12	+1.56	31.68	30.11				
													<i>m s</i>				
													1 30.213				
														+ 0.013			
															-		
																1 30.211	
Mar. 22	3602	+ 32 59	N	<i>I. P. E.</i>	10 24 30.87	-1.07	29.80	N	<i>I. P. W.</i>	10 25 60.82	-0.85	59.97	1 30.17				
	3609	+ 9 55	S	<i>d</i>	25 57.11	-1.02	56.09	S	<i>d</i>	27 27.43	-1.13	26.30	30.21				
	3622	+ 9 16	S	<i>c - 3.6</i> <i>b + 1.9</i> <i>a + 4.8</i>	28 11.81	-1.02	10.79	S	<i>c + 5.4</i> <i>b - 1.1</i> <i>a - 26.8</i>	29 42.23	-1.14	41.09	30.30				
	3641	+ 38 32	N	<i>s</i>	31 44.27	-1.09	43.18	N	<i>s</i>	33 14.10	-0.76	13.34	30.16				
	3666	+ 26 57	N	<i>Q - 1.01</i>	35 54.47	-1.05	53.42	N	<i>Q - 1.10</i>	37 24.49	-0.94	23.55	30.13				
													<i>m s</i>				
													1 30.194				
														+ 0.013			
															-		
																1 30.189	

NOTE.  $1^d = 0^{\circ}.0225$ . Transcribing Equation *will*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*JALPAIGURI (E) Lat.  $26^\circ 31'$ , Long.  $5^h 55^m 7^s$ ; AND CALCUTTA (W) Lat.  $22^\circ 33'$ , Long.  $5^h 53^m 36^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrus. for Peral. Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.007$	$\delta L_N - \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Apr. 4	3798	+ 2 36	S	<i>I. P. W.</i>	11 1 37.25	+1.60	38.85	S	<i>I. P. E.</i>	11 3 7.95	+0.99	8.94	1 30.09				
	3812	+ 45 9	N	<i>d</i> <i>c</i> + 1.6	3 46.28	+1.29	47.57	N	<i>d</i> <i>c</i> - 5.8	5 17.02	+0.60	17.62	30.05				
	3824	+ 15 3	S	<i>b</i> + 4.9 <i>a</i> + 20.0	6 16.67	+1.53	18.20	S	<i>b</i> - 1.3 <i>a</i> + 16.2	7 47.38	+0.92	48.30	30.10				
	3834	+ 21 11	S	<i>s</i> <i>Q</i> + 1.29	8 34.17	+1.49	35.66	S	<i>s</i> <i>Q</i> + 1.03	10 4.89	+0.87	5.76	30.10				
	3846	+ 50 8	N		10 47.50	+1.23	48.73	N		12 18.26	+0.53	18.79	30.06				
	3851	+ 32 12	N		12 37.54	+1.41	38.95	N		14 8.34	+0.77	9.11	30.16				
	3868	+ 44 9	N		17 5.47	+1.30	6.77	N		18 36.33	+0.62	36.95	30.18				
Apr. 4	3932	+ 17 27	S	<i>I. P. W.</i>	11 29 20.34	-1.07	19.27	S	<i>I. P. E.</i>	11 30 50.96	-1.17	49.79	1 30.52				
	3937	+ 28 26	N	<i>d</i> <i>c</i> + 1.6	30 51.77	-1.14	50.63	N	<i>d</i> <i>c</i> - 5.8	32 22.50	-1.25	21.25	30.62				
	3952	+ 44 17	N	<i>b</i> + 4.9 <i>a</i> + 20.0	32 49.89	-1.28	48.61	N	<i>b</i> - 1.3 <i>a</i> + 16.2	34 20.66	-1.44	19.22	30.61				
	3964	+ 22 1	S	<i>s</i> <i>Q</i> - 1.29	35 25.21	-1.09	24.12	S	<i>s</i> <i>Q</i> - 1.03	36 55.97	-1.20	54.77	30.65				
	3973	+ 42 23	N		38 8.91	-1.27	7.64	N		39 39.67	-1.41	38.26	30.62				
	3979	+ 8 55	S		39 58.30	-1.00	57.30	S		41 28.97	-1.10	27.87	30.57				
Apr. 5	3788	+ 7 59	S	<i>I. P. W.</i>	10 59 26.29	+1.58	27.87	S	<i>I. P. E.</i>	11 0 57.12	+1.13	58.25	1 30.38				
	3798	+ 2 36	S	<i>d</i> <i>c</i> + 1.5	11 1 23.56	+1.59	25.15	S	<i>d</i> <i>c</i> - 4.8	2 54.34	+1.17	55.51	30.36				
	3812	+ 45 9	N	<i>b</i> + 5.3 <i>a</i> + 15.9	3 32.55	+1.37	33.92	N	<i>b</i> - 1.4 <i>a</i> + 25.3	5 3.71	+0.62	4.33	30.41				
	3824	+ 15 3	S	<i>s</i> <i>Q</i> + 1.32	6 2.94	+1.54	4.48	S	<i>s</i> <i>Q</i> + 1.12	7 33.87	+1.06	34.93	30.45				
	3834	+ 21 11	S		8 20.45	+1.52	21.97	S		9 51.42	+0.98	52.40	30.43				
	3846	+ 50 8	N		10 33.72	+1.32	35.04	N		12 4.95	+0.50	5.45	30.41				
	3851	+ 32 12	N		12 23.87	+1.46	25.33	N		13 54.87	+0.84	55.71	30.38				
	3868	+ 44 9	N		16 51.78	+1.38	53.16	N		18 22.90	+0.64	23.54	30.38				

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.007$	$\delta L_N + \rho$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		o ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.17	4100	+ 27 57	N	<i>I. P. E.</i>	12 3 53.67	+ 0.89	54.56	N	<i>I. P. W.</i>	12 5 23.57	+ 1.28	24.85	1 30.29				
	4107	+ 26 32	N	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	4 59.18	+ 0.89	60.07	N	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	6 29.09	+ 1.20	30.29	30.22				
	4114	+ 10 55	S	<i>s</i>	6 32.54	+ 0.92	33.46	S	<i>s</i>	8 3.27	+ 0.51	3.78	30.32				
	4125	+ 15 33	S	<i>Q + 1.01</i>	9 7.76	+ 0.92	8.68	S	<i>Q + 1.06</i>	10 38.27	+ 0.69	38.96	30.28				
	4139	+ 26 40	N		12 12.21	+ 0.89	13.10	N		13 42.20	+ 1.21	43.41	30.31				
	4156	+ 18 27	S		13 52.45	+ 0.92	53.37	S		15 22.80	+ 0.83	23.63	30.26				
	4169	+ 26 30	N		15 41.58	+ 0.89	42.47	N		17 11.54	+ 1.21	12.75	30.28				
Mar.17	4195	+ 28 56	N	<i>I. P. E.</i>	12 20 12.58	- 1.13	11.45	N	<i>I. P. W.</i>	12 21 42.51	- 0.79	41.72	1 30.27				
	4205	+ 26 53	N	<i>c - 3.9</i> <i>b - 0.6</i> <i>a + 2.4</i>	21 53.62	- 1.13	52.49	N	<i>c + 3.1</i> <i>b - 5.0</i> <i>a - 110.8</i>	23 23.74	- 0.90	22.84	30.35				
	4228	+ 10 57	S	<i>s</i>	26 13.57	- 1.10	12.47	S	<i>s</i>	27 44.43	- 1.61	42.82	30.35				
	4240	+ 23 17	S	<i>Q - 1.01</i>	28 7.38	- 1.11	6.27	S	<i>Q - 1.06</i>	29 37.61	- 1.07	36.54	30.27				
	4248	+ 17 45	S		30 12.44	- 1.10	11.34	S		31 42.89	- 1.33	41.56	30.22				
	4258	+ 41 31	N		32 14.80	- 1.17	13.63	N		33 43.92	- 0.02	43.90	30.27				
	4267	+ 11 5	S		34 46.66	- 1.10	45.56	S		36 17.52	- 1.61	15.91	30.35				
Mar.19	4081	+ 14 10	S	<i>I. P. E.</i>	12 0 34.83	+ 1.19	36.02	S	<i>I. P. W.</i>	12 2 5.29	+ 1.00	6.29	1 30.27				
	4100	+ 27 57	N	<i>c - 0.1</i> <i>b + 3.9</i> <i>a + 14.7</i>	3 47.07	+ 1.12	48.19	N	<i>c + 4.3</i> <i>b - 2.9</i> <i>a - 36.2</i>	5 17.24	+ 1.22	18.46	30.27				
	4107	+ 26 32	N	<i>s</i>	4 52.57	+ 1.13	53.70	N	<i>s</i>	6 22.73	+ 1.20	23.93	30.23				
	4114	+ 10 55	S	<i>Q + 1.03</i>	6 25.93	+ 1.21	27.14	S	<i>Q + 1.09</i>	7 56.44	+ 0.95	57.39	30.25				
	4125	+ 15 33	S		9 1.16	+ 1.19	2.35	S		10 31.58	+ 1.02	32.60	30.25				
	4139	+ 26 40	N		12 5.64	+ 1.13	6.77	N		13 35.74	+ 1.20	36.94	30.17				
	4156	+ 18 27	S		13 45.82	+ 1.17	46.99	S		15 16.14	+ 1.06	17.20	30.21				
	4169	+ 26 30	N		15 35.02	+ 1.13	36.15	N		17 5.11	+ 1.20	6.31	30.16				

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 85° 55' 7"; AND CALCUTTA (W) Lat. 22° 33', Long. 88° 53' 36".																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.032$ $S_N - S_S = + 0^s.007$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 19	4195	+ 28 56	N	<i>I. P. E.</i>	12 20 6.02	-0.95	5.07	N	<i>I. P. W.</i>	12 21 36.23	-0.95	35.28	1 30.21			
	4205	+ 26 53	N	<i>c - 0.1</i>	21 47.09	-0.93	46.16	N	<i>d</i>	23 17.35	-0.98	16.37	30.21			
	4218	+ 10 22	S	<i>b + 3.9</i> <i>a + 14.7</i>	23 36.59	-0.85	35.74	S	<i>b - 2.9</i> <i>a - 36.2</i>	25 7.18	-1.22	5.96	30.22			
	4228	+ 10 57	S	<i>s</i>	26 6.98	-0.85	6.13	S	<i>s</i>	27 37.58	-1.23	36.35	30.22			
	4240	+ 23 17	S	<i>Q - 1.03</i>	27 60.76	-0.91	59.85	S	<i>Q - 1.09</i>	29 31.10	-1.05	30.05	30.20			
	4248	+ 17 45	S		30 5.80	-0.89	4.91	S		31 36.24	-1.13	35.11	30.20			
	4258	+ 41 31	N		32 8.24	-1.04	7.20	N		33 38.02	-0.69	37.33	30.13			
	4267	+ 11 5	S		34 40.04	-0.85	39.19	S		36 10.67	-1.23	9.44	30.25			
Mar. 22	4081	+ 14 10	S	<i>I. P. E.</i>	12 0 25.20	+0.99	26.19	S	<i>I. P. W.</i>	12 1 55.54	+1.10	56.64	1 30.45			
	4100	+ 27 57	N	<i>c - 3.6</i>	3 37.45	+0.97	38.42	N	<i>d</i>	5 7.50	+1.27	8.77	30.35			
	4107	+ 26 32	N	<i>b + 1.9</i> <i>a + 4.8</i>	4 42.97	+0.97	43.94	N	<i>b - 1.1</i> <i>a - 26.8</i>	6 13.04	+1.26	14.30	30.36			
	4114	+ 10 55	S	<i>s</i>	6 16.25	+1.00	17.25	S	<i>s</i>	7 46.63	+1.08	47.71	30.46			
	4125	+ 15 33	S	<i>Q + 1.01</i>	8 51.52	+0.99	52.51	S	<i>Q + 1.10</i>	10 21.83	+1.11	22.94	30.43			
	4130	+ 26 40	N		11 56.02	+0.97	56.99	N		13 25.99	+1.26	27.25	30.26			
	4156	+ 18 27	S		13 36.20	+0.98	37.18	S		15 6.40	+1.15	7.55	30.37			
	4160	+ 26 30	N		15 25.43	+0.97	26.40	N		16 55.41	+1.26	56.67	30.27			
Mar. 22	4195	+ 28 56	N	<i>I. P. E.</i>	12 19 56.32	-1.06	55.26	N	<i>I. P. W.</i>	12 21 26.56	-0.91	25.65	1 30.39			
	4205	+ 26 53	N	<i>c - 3.6</i>	21 37.49	-1.05	36.44	N	<i>d</i>	23 7.66	-0.94	6.72	30.28			
	4218	+ 10 22	S	<i>b + 1.9</i> <i>a + 4.8</i>	23 26.92	-1.02	25.90	S	<i>b - 1.1</i> <i>a - 26.8</i>	24 57.45	-1.13	56.32	30.42			
	4228	+ 10 57	S	<i>s</i>	25 57.34	-1.02	56.32	S	<i>s</i>	27 27.87	-1.12	26.75	30.43			
	4240	+ 23 17	S	<i>Q - 1.01</i>	27 51.17	-1.04	50.13	S	<i>Q - 1.10</i>	29 21.43	-0.99	20.44	30.31			
	4248	+ 17 45	S		29 56.15	-1.04	55.11	S		31 26.60	-1.05	25.55	30.44			
	4258	+ 41 31	N		31 58.58	-1.10	57.48	N		33 28.50	-0.71	27.79	30.31			
	4267	+ 11 5	S		34 30.44	-1.02	29.42	S		35 60.97	-1.12	59.85	30.43			

NOTE.  $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $88^{\circ} 53' 36''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ}.052$ $S_N - S_S = + 0^{\circ}.007$
	B. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Ap. 4	4384	+36 26	N	<i>I. P. W.</i>	12 59 27.73	+1.36	29.09	N	<i>I. P. E.</i>	13 0 59.18	+0.72	59.90	1 30.81			
	4390	+28 16	N	<i>d</i>	13 0 45.32	+1.44	46.76	N	<i>d</i>	2 16.63	+0.81	17.44	30.68			
	4393	+28 11	N	<i>c + 1.6</i> <i>b + 4.9</i> <i>a + 20.0</i>	1 29.09	+1.44	30.53	N	<i>c - 5.8</i> <i>b - 1.3</i> <i>a + 16.2</i>	3 0.35	+0.81	1.16	30.63			
	4403	+17 29	S	<i>s</i>	3 14.00	+1.51	15.51	S	<i>s</i>	4 45.33	+0.89	46.22	30.71			
	4406	+18 9	S	<i>Q + 1.29</i>	3 29.11	+1.51	30.62	S	<i>Q + 1.03</i>	5 0.27	+0.89	1.16	30.54	<i>m s</i> 1 30.658	+ 0.003	
	4423	+12 10	S		5 54.83	+1.55	56.38	S		7 26.11	+0.94	27.05	30.67			
	4433	+40 47	N		7 36.39	+1.33	37.72	N		9 7.67	+0.67	8.34	30.62			
	4440	+10 2	S		10 9.34	+1.57	10.91	S		11 40.56	+0.95	41.51	30.60			
Ap. 4	4499	+14 25	S	<i>I. P. W.</i>	13 21 56.28	-1.04	55.24	S	<i>I. P. E.</i>	13 23 27.12	-1.14	25.98	1 30.74			
	4504	+11 26	S	<i>d</i>	22 38.96	-1.02	37.94	S	<i>d</i>	24 9.80	-1.12	8.68	30.74			
	4519	+42 43	N	<i>c + 1.6</i> <i>b + 4.9</i> <i>a + 20.0</i>	25 25.46	-1.27	24.19	N	<i>c - 5.8</i> <i>b - 1.3</i> <i>a + 16.2</i>	26 56.41	-1.42	54.99	30.80			
	4536	+37 47	N	<i>s</i>	28 48.55	-1.21	47.34	N	<i>s</i>	30 19.39	-1.36	18.03	30.69			
	4552	+36 54	N	<i>Q - 1.29</i>	31 29.92	-1.21	28.71	N	<i>Q - 1.03</i>	32 60.82	-1.34	59.48	30.77	<i>m s</i> 1 30.740	+ 0.003	
	4566	+23 6	S		34 44.16	-1.10	43.06	S		36 15.01	-1.20	13.81	30.75			
	4594	+26 18	N		40 31.32	-1.13	30.19	N		42 2.15	-1.24	0.91	30.72			
	4616	+16 23	S		43 3.84	-1.06	2.78	S		44 34.64	-1.15	33.49	30.71			
Ap. 5	4384	+36 26	N	<i>I. P. W.</i>	12 59 25.18	+1.43	26.61	N	<i>I. P. E.</i>	13 0 56.49	+0.78	57.27	1 30.66			
	4390	+28 16	N	<i>d</i>	13 0 42.74	+1.49	44.23	N	<i>d</i>	2 13.90	+0.90	14.80	30.57			
	4393	+28 11	N	<i>c + 1.5</i> <i>b + 5.3</i> <i>a + 15.9</i>	1 26.50	+1.49	27.99	N	<i>c - 4.8</i> <i>b - 1.4</i> <i>a + 25.3</i>	2 57.71	+0.90	58.61	30.62			
	4403	+17 29	S	<i>s</i>	3 11.35	+1.54	12.89	S	<i>s</i>	4 42.63	+1.02	43.65	30.76			
	4406	+18 9	S	<i>Q + 1.32</i>	3 26.44	+1.53	27.97	S	<i>Q + 1.12</i>	4 57.69	+1.02	58.71	30.74	<i>m s</i> 1 30.688	+ 0.003	
	4423	+12 10	S		5 52.18	+1.56	53.74	S		7 23.42	+1.08	24.50	30.76			
	4433	+40 47	N		7 33.72	+1.40	35.12	N		9 5.07	+0.71	5.78	30.66			
	4440	+10 2	S		10 6.67	+1.57	8.24	S		11 37.86	+1.11	38.97	30.73			

NOTE.  $1^{\circ} = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho^*$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> .007	δL <sub>N</sub> + ρ
	R. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Apr. 5	4409	+14 25	S	<i>I. P. W.</i>	13 21 53.70	-1.09	52.61	S	<i>I. P. E.</i>	13 23 24.56	-1.18	23.38	1 30.77				
	4504	+11 26	S	<i>d</i>	22 36.38	-1.08	35.30	S	<i>d</i>	24 7.25	-1.15	6.10	30.80				
	4519	+42 43	N	<i>c</i> + 1.5 <i>b</i> + 5.3 <i>a</i> + 15.9	25 22.95	-1.25	21.70	N	<i>c</i> - 4.8 <i>b</i> - 1.4 <i>a</i> + 25.3	26 53.98	-1.58	52.40	30.70				
	4536	+37 47	N	<i>s</i>	28 45.98	-1.22	44.76	N	<i>s</i>	30 16.92	-1.49	15.43	30.67				
	4552	+36 54	N	<i>Q</i> - 1.32	31 27.41	-1.21	26.20	N	<i>Q</i> - 1.12	32 58.33	-1.46	56.87	30.67	<i>m s</i> 1 30.705	+ 0.003	-	1 30.685
	4566	+23 6	S		34 41.65	-1.13	40.52	S		36 12.40	-1.28	11.12	30.60				
	4594	+26 18	N		40 28.79	-1.15	27.64	N		41 59.67	-1.32	58.35	30.71				
	4615	+16 23	S		43 1.30	-1.10	0.20	S		44 32.12	-1.20	30.92	30.72				
Apr. 6	4384	+36 26	N	<i>I. P. W.</i>	12 59 21.85	+1.36	23.21	N	<i>I. P. E.</i>	13 0 53.25	+0.67	53.92	1 30.71				
	4390	+28 16	N	<i>d</i>	13 0 39.40	+1.41	40.81	N	<i>d</i>	2 10.63	+0.80	11.43	30.62				
	4393	+28 11	N	<i>c</i> + 0.4 <i>b</i> + 3.5 <i>a</i> + 15.1	1 23.16	+1.41	24.57	N	<i>c</i> - 6.5 <i>b</i> - 4.3 <i>a</i> + 27.4	2 54.40	+0.80	55.20	30.63				
	4403	+17 29	S	<i>s</i>	3 8.06	+1.47	9.53	S	<i>s</i>	4 39.30	+0.95	40.25	30.72				
	4406	+18 9	S	<i>Q</i> + 1.32	3 23.15	+1.46	24.61	S	<i>Q</i> + 1.15	4 54.33	+0.94	55.27	30.66	<i>m s</i> 1 30.673	+ 0.003	-	1 30.653
	4423	+12 10	S		5 48.90	+1.50	50.40	S		7 20.08	+1.01	21.09	30.69				
	4433	+40 47	N		7 30.38	+1.32	31.70	N		9 1.79	+0.59	2.38	30.68				
	4400	+10 2	S		10 3.37	+1.51	4.88	S		11 34.52	+1.03	35.55	30.67				
Apr. 6	4409	+14 25	S	<i>I. P. W.</i>	13 21 50.33	-1.16	49.17	S	<i>I. P. E.</i>	13 23 21.31	-1.31	20.00	1 30.83				
	4504	+11 26	S	<i>d</i>	22 33.09	-1.14	31.95	S	<i>d</i>	24 3.96	-1.28	2.68	30.73				
	4519	+42 43	N	<i>c</i> + 0.4 <i>b</i> + 3.5 <i>a</i> + 15.1	25 19.74	-1.34	18.40	N	<i>c</i> - 6.5 <i>b</i> - 4.3 <i>a</i> + 27.4	26 50.74	-1.76	48.98	30.58				
	4536	+37 47	N	<i>s</i>	28 42.74	-1.29	41.45	N	<i>s</i>	30 13.75	-1.66	12.09	30.64				
	4552	+36 54	N	<i>Q</i> - 1.32	31 24.12	-1.29	22.83	N	<i>Q</i> - 1.15	32 55.10	-1.64	53.46	30.63	<i>m s</i> 1 30.681	+ 0.003	-	1 30.661
	4566	+23 6	S		34 38.41	-1.20	37.21	S		36 9.20	-1.42	7.78	30.57				
	4594	+26 18	N		40 25.53	-1.22	24.31	N		41 56.49	-1.46	55.03	30.72				
	4615	+16 23	S		42 58.00	-1.17	56.83	S		44 28.91	-1.33	27.58	30.75				

NOTE.  $1^d = 0.0225$ . Transcribing Equation  $\pi/2$ , all records having been transcribed by the same person. $\rho$  is the retardation of an electric signal between the stations.

TABLE XI. DEDUCTION OF CLOCK RATE CORRECTIONS FROM THE OBSERVATIONS OF TRANSITS. 165

Arc	Approximate Difference of Longitude	Intervals between Nights of Observations	Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz.:									
			a, Corrections for the Intervals between Nights of Observations, and									
			β, Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities a.									
			α at E Station for		α at W Station for		Astronomical Dates of Observations	β for		Correction to Observed Difference of Times of Transit for		
E Clock	W Clock	E Clock	W Clock	E Clock	W Clock	E Clock		W Clock				
Fyzabad (E), and Agra (W)	16 <sup>m</sup> 28 <sup>s</sup>	1881	s	s	s	s	1881	s	s	s	s	
		Nov. 25 to 28	+ 28 <sup>h</sup> 31.3	- 12 <sup>h</sup> 69.5	+ 28 <sup>h</sup> 67.4	- 12 <sup>h</sup> 35.3	Nov. 25	+ 0 <sup>h</sup> 39.6	- 0 <sup>h</sup> 17.3	+ 0 <sup>h</sup> 10.8	- 0 <sup>h</sup> 04.7	
		.....	...	...	...	...	" 26	+ 39.6	- 17.3	+ 10.8	- 04.7	
		.....	...	...	...	...	" 27	+ 39.6	- 17.3	+ 10.8	- 04.7	
		" 28 " 29	+ 9 <sup>h</sup> 39.5	- 4 <sup>h</sup> 07.7	+ 9 <sup>h</sup> 36.1	- 4 <sup>h</sup> 05.7	" 28	+ 39.4	- 17.2	+ 10.8	- 04.7	
		" 29 " 30	+ 9 <sup>h</sup> 48.3	- 4 <sup>h</sup> 01.3	+ 8 <sup>h</sup> 99.0	- 4 <sup>h</sup> 77.0	" 29	+ 38.8	- 17.6	+ 10.6	- 04.8	
		" 30 " Dec. 1	+ 9 <sup>h</sup> 64.9	- 4 <sup>h</sup> 06.4	+ 9 <sup>h</sup> 71.9	- 3 <sup>h</sup> 94.9	" 30	+ 39.2	- 17.3	+ 10.7	- 04.7	
		Dec. 1 " 2	+ 9 <sup>h</sup> 96.5	- 4 <sup>h</sup> 19.9	+ 9 <sup>h</sup> 94.7	- 4 <sup>h</sup> 23.9	Dec. 1	+ 40.9	- 17.2	+ 11.2	- 04.7	
.....	...	...	...	...	" 2	+ 41.4	- 17.6	+ 11.3	- 04.8			
Fyzabad (E), and Jubbulpore (W)	8 <sup>m</sup> 45 <sup>s</sup>	Dec. 12 to 13	+ 11 <sup>h</sup> 15.0	+ 8 <sup>h</sup> 11.0	+ 10 <sup>h</sup> 88.7	+ 7 <sup>h</sup> 74.4	Dec. 12	+ 0 <sup>h</sup> 45.9	+ 0 <sup>h</sup> 33.0	+ 0 <sup>h</sup> 06.7	+ 0 <sup>h</sup> 04.8	
		" 13 " 14	+ 11 <sup>h</sup> 30.1	+ 8 <sup>h</sup> 21.1	+ 11 <sup>h</sup> 32.4	+ 8 <sup>h</sup> 26.8	" 13	+ 46.5	+ 33.7	+ 06.8	+ 04.9	
		" 14 " 16	+ 23 <sup>h</sup> 05.2	+ 17 <sup>h</sup> 25.9	+ 23 <sup>h</sup> 37.8	+ 17 <sup>h</sup> 64.9	" 14	+ 47.8	+ 35.4	+ 07.0	+ 05.2	
		.....	...	...	...	...	" 15	+ 48.4	+ 36.4	+ 07.1	+ 05.3	
		" 16 " 19	+ 30 <sup>h</sup> 73.6	+ 26 <sup>h</sup> 74.3	+ 30 <sup>h</sup> 62.7	+ 26 <sup>h</sup> 56.8	" 16	+ 45.5	+ 36.7	+ 06.6	+ 05.4	
		.....	...	...	...	...	" 17	+ 42.6	+ 37.0	+ 06.2	+ 05.4	
		.....	...	...	...	...	" 18	+ 42.6	+ 37.0	+ 06.2	+ 05.4	
		" 19 " 20	+ 9 <sup>h</sup> 38.0	+ 9 <sup>h</sup> 22.3	+ 9 <sup>h</sup> 50.1	+ 9 <sup>h</sup> 23.3	" 19	+ 41.0	+ 37.7	+ 06.0	+ 05.5	
.....	...	...	...	...	" 20	+ 39.4	+ 38.4	+ 05.8	+ 05.6			
Hazariabagh (E), and Fyzabad (W)	12 <sup>m</sup> 55 <sup>s</sup>	1882					1882					
		Jan. 4 to 5	+ 5 <sup>h</sup> 05.2	+ 10 <sup>h</sup> 15.9	+ 4 <sup>h</sup> 92.8	+ 10 <sup>h</sup> 14.4	Jan. 4	+ 0 <sup>h</sup> 20.8	+ 0 <sup>h</sup> 42.2	+ 0 <sup>h</sup> 04.5	+ 0 <sup>h</sup> 09.1	
		" 5 " 6	+ 5 <sup>h</sup> 33.3	+ 10 <sup>h</sup> 86.4	+ 5 <sup>h</sup> 33.0	+ 10 <sup>h</sup> 89.1	" 5	+ 21.5	+ 43.8	+ 04.6	+ 09.4	
		" 6 " 7	+ 4 <sup>h</sup> 82.0	+ 11 <sup>h</sup> 34.1	+ 5 <sup>h</sup> 06.0	+ 11 <sup>h</sup> 38.5	" 6	+ 21.4	+ 46.3	+ 04.6	+ 10.0	
		" 7 " 9	+ 10 <sup>h</sup> 33.5	+ 22 <sup>h</sup> 11.7	+ 10 <sup>h</sup> 13.4	+ 21 <sup>h</sup> 96.4	" 7	+ 21.0	+ 46.6	+ 04.5	+ 10.0	
		.....	...	...	...	...	" 8	+ 21.3	+ 45.9	+ 04.6	+ 09.9	
		" 9 " 10	+ 5 <sup>h</sup> 67.6	+ 10 <sup>h</sup> 34.2	+ 5 <sup>h</sup> 53.0	+ 10 <sup>h</sup> 22.8	" 9	+ 22.3	+ 44.5	+ 04.8	+ 09.6	
.....	...	...	...	...	" 10	+ 23.3	+ 42.9	+ 05.0	+ 09.2			

Arc	Approximate Difference of Longitude	Intervals between Nights of Observations	Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz. :									
			$\alpha$ , Corrections for the Intervals between Nights of Observations, and $\beta$ , Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities $\alpha$ .									
			$\alpha$ at E Station for		$\alpha$ at W Station for		Astronomical Dates of Observations	$\beta$ for		Correction to Observed Difference of Times of Transit for		
E Clock	W Clock	E Clock	W Clock	E Clock	W Clock	E Clock		W Clock				
Hazarebagh (E), and Jubbulpore (W)	21 <sup>m</sup> 41 <sup>s</sup>	1882	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	1882	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	
		Jan. 19 to 20	+ 4 <sup>h</sup> 7 <sup>m</sup> 05 <sup>s</sup>	+ 19 <sup>h</sup> 7 <sup>m</sup> 28 <sup>s</sup>	+ 4 <sup>h</sup> 68 <sup>m</sup> 3 <sup>s</sup>	+ 19 <sup>h</sup> 7 <sup>m</sup> 05 <sup>s</sup>	Jan. 19	+ 0 <sup>h</sup> 19 <sup>m</sup> 8 <sup>s</sup>	+ 0 <sup>h</sup> 8 <sup>m</sup> 22 <sup>s</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 1 <sup>s</sup>	+ 0 <sup>h</sup> 29 <sup>m</sup> 7 <sup>s</sup>	
		" 20 " 21	+ 4 <sup>h</sup> 52 <sup>m</sup> 1 <sup>s</sup>	+ 19 <sup>h</sup> 35 <sup>m</sup> 1 <sup>s</sup>	+ 4 <sup>h</sup> 48 <sup>m</sup> 1 <sup>s</sup>	+ 19 <sup>h</sup> 29 <sup>m</sup> 4 <sup>s</sup>	" 20	+ 1 <sup>h</sup> 19 <sup>m</sup> 4 <sup>s</sup>	+ 8 <sup>h</sup> 16 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 0 <sup>s</sup>	+ 29 <sup>m</sup> 5 <sup>s</sup>	
		" 21 " 24	+ 15 <sup>h</sup> 40 <sup>m</sup> 1 <sup>s</sup>	+ 57 <sup>h</sup> 45 <sup>m</sup> 5 <sup>s</sup>	+ 15 <sup>h</sup> 42 <sup>m</sup> 4 <sup>s</sup>	+ 57 <sup>h</sup> 62 <sup>m</sup> 6 <sup>s</sup>	" 21	+ 2 <sup>h</sup> 01 <sup>m</sup>	+ 8 <sup>h</sup> 02 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 2 <sup>s</sup>	+ 29 <sup>m</sup> 0 <sup>s</sup>	
		.....	...	...	...	...	" 22	+ 2 <sup>h</sup> 14 <sup>m</sup>	+ 8 <sup>h</sup> 00 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 7 <sup>s</sup>	+ 28 <sup>m</sup> 9 <sup>s</sup>	
		.....	...	...	...	...	" 23	+ 2 <sup>h</sup> 14 <sup>m</sup>	+ 8 <sup>h</sup> 00 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 7 <sup>s</sup>	+ 28 <sup>m</sup> 9 <sup>s</sup>	
		" 24 " 25	+ 4 <sup>h</sup> 9 <sup>m</sup> 58 <sup>s</sup>	+ 19 <sup>h</sup> 9 <sup>m</sup> 15 <sup>s</sup>	+ 4 <sup>h</sup> 9 <sup>m</sup> 7 <sup>s</sup>	+ 19 <sup>h</sup> 8 <sup>m</sup> 9 <sup>s</sup> 0 <sup>s</sup>	" 24	+ 2 <sup>h</sup> 11 <sup>m</sup>	+ 8 <sup>h</sup> 14 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 6 <sup>s</sup>	+ 29 <sup>m</sup> 4 <sup>s</sup>	
		" 25 " 26	+ 4 <sup>h</sup> 9 <sup>m</sup> 18 <sup>s</sup>	+ 20 <sup>h</sup> 58 <sup>m</sup> 2 <sup>s</sup>	+ 4 <sup>h</sup> 7 <sup>m</sup> 28 <sup>s</sup>	+ 20 <sup>h</sup> 41 <sup>m</sup> 1 <sup>s</sup>	" 25	+ 2 <sup>h</sup> 04 <sup>m</sup>	+ 8 <sup>h</sup> 42 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 4 <sup>s</sup>	+ 30 <sup>m</sup> 4 <sup>s</sup>	
.....	...	...	...	...	" 26	+ 1 <sup>h</sup> 19 <sup>m</sup> 8 <sup>s</sup>	+ 8 <sup>h</sup> 50 <sup>m</sup>	+ 0 <sup>h</sup> 07 <sup>m</sup> 1 <sup>s</sup>	+ 30 <sup>m</sup> 7 <sup>s</sup>			
Calcutta (E), and Hazarebagh (W)	11 <sup>m</sup> 57 <sup>s</sup>	Feb. 8 to 9	+ 15 <sup>h</sup> 50 <sup>m</sup> 2 <sup>s</sup>	+ 5 <sup>h</sup> 9 <sup>m</sup> 26 <sup>s</sup>	+ 15 <sup>h</sup> 67 <sup>m</sup> 2 <sup>s</sup>	+ 6 <sup>h</sup> 10 <sup>m</sup> 0 <sup>s</sup>	Feb. 8	+ 0 <sup>h</sup> 64 <sup>m</sup> 9 <sup>s</sup>	+ 0 <sup>h</sup> 25 <sup>m</sup> 1 <sup>s</sup>	+ 0 <sup>h</sup> 12 <sup>m</sup> 9 <sup>s</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 0 <sup>s</sup>	
		" 9 " 10	+ 15 <sup>h</sup> 66 <sup>m</sup> 9 <sup>s</sup>	+ 6 <sup>h</sup> 17 <sup>m</sup> 1 <sup>s</sup>	+ 15 <sup>h</sup> 68 <sup>m</sup> 3 <sup>s</sup>	+ 6 <sup>h</sup> 16 <sup>m</sup> 1 <sup>s</sup>	" 9	+ 6 <sup>h</sup> 51 <sup>m</sup>	+ 2 <sup>h</sup> 54 <sup>m</sup>	+ 1 <sup>h</sup> 30 <sup>m</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 1 <sup>s</sup>	
		" 10 " 13	+ 43 <sup>h</sup> 00 <sup>m</sup> 1 <sup>s</sup>	+ 17 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 43 <sup>h</sup> 07 <sup>m</sup> 8 <sup>s</sup>	+ 17 <sup>h</sup> 17 <sup>m</sup> 1 <sup>s</sup>	" 10	+ 6 <sup>h</sup> 26 <sup>m</sup>	+ 2 <sup>h</sup> 47 <sup>m</sup>	+ 1 <sup>h</sup> 24 <sup>m</sup>	+ 0 <sup>h</sup> 49 <sup>m</sup>	
		.....	...	...	...	...	" 11	+ 5 <sup>h</sup> 58 <sup>m</sup>	+ 2 <sup>h</sup> 37 <sup>m</sup>	+ 1 <sup>h</sup> 19 <sup>m</sup>	+ 0 <sup>h</sup> 47 <sup>m</sup>	
		.....	...	...	...	...	" 12	+ 5 <sup>h</sup> 58 <sup>m</sup>	+ 2 <sup>h</sup> 37 <sup>m</sup>	+ 1 <sup>h</sup> 19 <sup>m</sup>	+ 0 <sup>h</sup> 47 <sup>m</sup>	
		" 13 " 14	+ 14 <sup>h</sup> 29 <sup>m</sup> 8 <sup>s</sup>	+ 4 <sup>h</sup> 39 <sup>m</sup> 6 <sup>s</sup>	+ 14 <sup>h</sup> 33 <sup>m</sup> 3 <sup>s</sup>	+ 4 <sup>h</sup> 50 <sup>m</sup> 9 <sup>s</sup>	" 13	+ 5 <sup>h</sup> 57 <sup>m</sup>	+ 2 <sup>h</sup> 12 <sup>m</sup>	+ 1 <sup>h</sup> 19 <sup>m</sup>	+ 0 <sup>h</sup> 42 <sup>m</sup>	
		" 14 " 16	+ 28 <sup>h</sup> 9 <sup>m</sup> 12 <sup>s</sup>	+ 12 <sup>h</sup> 41 <sup>m</sup> 6 <sup>s</sup>	+ 28 <sup>h</sup> 7 <sup>m</sup> 7 <sup>s</sup>	+ 12 <sup>h</sup> 19 <sup>m</sup> 4 <sup>s</sup>	" 14	+ 5 <sup>h</sup> 59 <sup>m</sup>	+ 2 <sup>h</sup> 21 <sup>m</sup>	+ 1 <sup>h</sup> 19 <sup>m</sup>	+ 0 <sup>h</sup> 44 <sup>m</sup>	
		.....	...	...	...	...	" 15	+ 6 <sup>h</sup> 01 <sup>m</sup>	+ 2 <sup>h</sup> 56 <sup>m</sup>	+ 1 <sup>h</sup> 20 <sup>m</sup>	+ 0 <sup>h</sup> 51 <sup>m</sup>	
.....	...	...	...	...	" 16	+ 6 <sup>h</sup> 01 <sup>m</sup>	+ 2 <sup>h</sup> 56 <sup>m</sup>	+ 1 <sup>h</sup> 20 <sup>m</sup>	+ 0 <sup>h</sup> 51 <sup>m</sup>			
Jalpaiguri (E), and Hazarebagh (W)	13 <sup>m</sup> 27 <sup>s</sup>	Feb. 25 to Mar. 1	+ 49 <sup>h</sup> 68 <sup>m</sup> 3 <sup>s</sup>	+ 21 <sup>h</sup> 64 <sup>m</sup> 6 <sup>s</sup>	+ 49 <sup>h</sup> 76 <sup>m</sup> 1 <sup>s</sup>	+ 21 <sup>h</sup> 69 <sup>m</sup> 6 <sup>s</sup>	Feb. 25	+ 0 <sup>h</sup> 51 <sup>m</sup> 8 <sup>s</sup>	+ 0 <sup>h</sup> 22 <sup>m</sup> 6 <sup>s</sup>	+ 0 <sup>h</sup> 11 <sup>m</sup> 6 <sup>s</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 1 <sup>s</sup>	
		Mar. 1 " 2	+ 12 <sup>h</sup> 18 <sup>m</sup> 7 <sup>s</sup>	+ 6 <sup>h</sup> 35 <sup>m</sup> 2 <sup>s</sup>	+ 12 <sup>h</sup> 07 <sup>m</sup> 2 <sup>s</sup>	+ 6 <sup>h</sup> 25 <sup>m</sup> 6 <sup>s</sup>	Mar. 1	+ 5 <sup>h</sup> 11 <sup>m</sup>	+ 2 <sup>h</sup> 45 <sup>m</sup>	+ 1 <sup>h</sup> 14 <sup>m</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 5 <sup>s</sup>	
		" 2 " 3	+ 12 <sup>h</sup> 08 <sup>m</sup> 8 <sup>s</sup>	+ 6 <sup>h</sup> 27 <sup>m</sup> 0 <sup>s</sup>	+ 12 <sup>h</sup> 10 <sup>m</sup> 0 <sup>s</sup>	+ 6 <sup>h</sup> 12 <sup>m</sup> 9 <sup>s</sup>	" 2	+ 5 <sup>h</sup> 05 <sup>m</sup>	+ 2 <sup>h</sup> 62 <sup>m</sup>	+ 1 <sup>h</sup> 13 <sup>m</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 9 <sup>s</sup>	
		" 3 " 4	+ 12 <sup>h</sup> 50 <sup>m</sup> 0 <sup>s</sup>	+ 4 <sup>h</sup> 79 <sup>m</sup> 4 <sup>s</sup>	+ 12 <sup>h</sup> 23 <sup>m</sup> 7 <sup>s</sup>	+ 4 <sup>h</sup> 66 <sup>m</sup> 0 <sup>s</sup>	" 3	+ 5 <sup>h</sup> 10 <sup>m</sup>	+ 2 <sup>h</sup> 28 <sup>m</sup>	+ 1 <sup>h</sup> 14 <sup>m</sup>	+ 0 <sup>h</sup> 05 <sup>m</sup> 1 <sup>s</sup>	
		" 4 " 5	+ 13 <sup>h</sup> 34 <sup>m</sup> 6 <sup>s</sup>	+ 4 <sup>h</sup> 41 <sup>m</sup> 1 <sup>s</sup>	+ 13 <sup>h</sup> 64 <sup>m</sup> 4 <sup>s</sup>	+ 4 <sup>h</sup> 63 <sup>m</sup> 4 <sup>s</sup>	" 4	+ 5 <sup>h</sup> 38 <sup>m</sup>	+ 1 <sup>h</sup> 03 <sup>m</sup>	+ 1 <sup>h</sup> 21 <sup>m</sup>	+ 0 <sup>h</sup> 43 <sup>m</sup>	
		.....	...	...	...	...	" 5	+ 5 <sup>h</sup> 62 <sup>m</sup>	+ 1 <sup>h</sup> 88 <sup>m</sup>	+ 1 <sup>h</sup> 26 <sup>m</sup>	+ 0 <sup>h</sup> 42 <sup>m</sup>	
Jalpaiguri (E), and Calcutta (W)	1 <sup>m</sup> 30 <sup>s</sup>	Mar. 17 to 19	+ 25 <sup>h</sup> 19 <sup>m</sup> 6 <sup>s</sup>	+ 6 <sup>h</sup> 36 <sup>m</sup> 4 <sup>s</sup>	+ 25 <sup>h</sup> 23 <sup>m</sup> 6 <sup>s</sup>	+ 6 <sup>h</sup> 44 <sup>m</sup> 8 <sup>s</sup>	Mar. 17	+ 0 <sup>h</sup> 52 <sup>m</sup> 5 <sup>s</sup>	+ 0 <sup>h</sup> 13 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		.....	...	...	...	...	" 18	+ 5 <sup>h</sup> 25 <sup>m</sup>	+ 1 <sup>h</sup> 13 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		" 19 " 22	+ 36 <sup>h</sup> 22 <sup>m</sup> 8 <sup>s</sup>	+ 9 <sup>h</sup> 7 <sup>m</sup> 8 <sup>s</sup>	+ 36 <sup>h</sup> 14 <sup>m</sup> 2 <sup>s</sup>	+ 9 <sup>h</sup> 64 <sup>m</sup> 9 <sup>s</sup>	" 19	+ 5 <sup>h</sup> 15 <sup>m</sup>	+ 1 <sup>h</sup> 13 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		.....	...	...	...	...	" 20	+ 5 <sup>h</sup> 15 <sup>m</sup>	+ 1 <sup>h</sup> 14 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		.....	...	...	...	...	" 21	+ 5 <sup>h</sup> 04 <sup>m</sup>	+ 1 <sup>h</sup> 14 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		.....	...	...	...	...	" 22	+ 5 <sup>h</sup> 04 <sup>m</sup>	+ 1 <sup>h</sup> 15 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		April 4 " 5	+ 13 <sup>h</sup> 47 <sup>m</sup> 0 <sup>s</sup>	+ 2 <sup>h</sup> 57 <sup>m</sup> 9 <sup>s</sup>	+ 13 <sup>h</sup> 41 <sup>m</sup> 9 <sup>s</sup>	+ 2 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup>	April 4	+ 5 <sup>h</sup> 61 <sup>m</sup>	+ 1 <sup>h</sup> 07 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 4 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
		" 5 " 6	+ 12 <sup>h</sup> 8 <sup>m</sup> 59 <sup>s</sup>	+ 3 <sup>h</sup> 36 <sup>m</sup> 1 <sup>s</sup>	+ 12 <sup>h</sup> 9 <sup>m</sup> 36 <sup>s</sup>	+ 3 <sup>h</sup> 39 <sup>m</sup> 9 <sup>s</sup>	" 5	+ 5 <sup>h</sup> 49 <sup>m</sup>	+ 1 <sup>h</sup> 24 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 4 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>	
.....	...	...	...	...	" 6	+ 5 <sup>h</sup> 37 <sup>m</sup>	+ 1 <sup>h</sup> 40 <sup>m</sup>	+ 0 <sup>h</sup> 01 <sup>m</sup> 3 <sup>s</sup>	+ 0 <sup>h</sup> 00 <sup>m</sup> 3 <sup>s</sup>			

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

FYZABAD (E), AND AGRA (W).									
Astronomical Date	Instrumental Position at		By Clock Comparisons				By Transits at both Stations with the same Clock		
			Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
	E	W					E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1881			<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
November 25	<i>I. P. E.</i>	<i>I. P. W.</i>	3 59 54	- 0 9'627	16 37'464	16 27'837	16 27'962	16 27'945	
" "	"	"	4 57 35	9'037	36'907	27'870	27'845	27'822	
" 28	"	"	3 59 26	+ 0 31'052	15 56'446	27'498	27'607	27'547	
" "	"	"	4 56 19	31'615	55'909	27'524	27'508	27'544	
" 29	"	"	3 59 16	44'522	43'010	27'532	27'639	27'472	
" "	"	"	4 56 23	45'036	42'468	27'504	27'571	27'585	
" 30	<i>I. P. W.</i>	<i>I. P. E.</i>	3 59 45	58'672	29'518	28'190	28'016	28'372	
" "	"	"	4 56 18	59'275	28'978	28'253	28'206	28'331	
December 1	"	"	3 58 57	1 12'297	15'858	28'155	28'033	28'237	
" "	"	"	4 56 8	12'913	15'285	28'198	28 017	28'230	
" 2	"	"	3 58 47	26'470	1'677	28'147	28'039	28'283	
" "	"	"	4 55 58	27'111	1'096	28'207	28'064	28'285	
Mean values for instrumental positions	<i>I. P. E.</i>	<i>I. P. W.</i>	...	...	...	16 27'628	16 27'689	16 27'653	
"	<i>I. P. W.</i>	<i>I. P. E.</i>	...	...	...	28'192	28'063	28'290	
General Means						16 27'910	16 27'876	16 27'971	
Whence ... .. $\delta L_N = 16 27'910$ Correction for Relative Personal Equation, $\Pi_N - S_N = + 0'007$ $\Delta L_N = 16 27'917$							$\delta L_N = 16 27'924$ $\Pi_N - S_N = + 0'007$ $\Delta L_N = 16 27'931$		
Again ... .. $\delta L_S = 16 27'933$ Correction for Relative Personal Equation, $\Pi_S - S_S = - 0'016$ $\Delta L_S = 16 27'917$							$\delta L_S = 16 27'947$ $\Pi_S - S_S = - 0'016$ $\Delta L_S = 16 27'931$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 16 27'917$ $\rho = + 0'041$							$\Delta L = 16 27'931$ $\rho = + 0'048$		

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

FYZABAD (E), AND JUBBULPORE (W).							
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock	
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference D at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with	
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$
1881		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>
December 12	<i>I. P. W.</i>	...	...	...	...	8 44' 57.4	8 44' 56.9
" "	"	5 16 32	+ 0 44' 99.4	7 59' 62.5	8 44' 61.9	44' 45.6	44' 51.7
" 13	"	4 57 40	48' 24.5	56' 57.7	44' 82.2	44' 75.4	44' 90.3
" "	"	5 16 20	48' 38.5	56' 52.7	44' 91.2	44' 76.1	44' 91.4
" 14	"	4 56 11	51' 29.3	53' 43.9	44' 73.2	44' 70.5	44' 85.5
" "	"	5 16 9	51' 42.9	53' 38.8	44' 81.7	44' 72.1	44' 85.0
" 16	<i>I. P. E.</i>	4 56 54	56' 79.5	47' 72.3	44' 51.8	44' 37.6	44' 44.3
" "	"	5 15 47	56' 80.1	47' 68.7	44' 48.8	44' 42.0	44' 53.2
" 19	"	4 56 23	1 0' 81.8	43' 73.1	44' 54.9	44' 55.2	44' 77.1
" "	"	5 15 16	0' 94.6	43' 72.3	44' 66.9	44' 57.1	44' 60.2
" 20	"	4 56 14	1' 03.6	43' 47.2	44' 50.8	44' 41.2	44' 64.6
" "	"	5 15 7	1' 08.3	43' 46.1	44' 54.4	44' 31.1	44' 68.0
Mean values for instrumental positions <i>I. P. W.</i> at both stations					8 44' 78.0	8 44' 66.2	8 44' 76.8
" " <i>I. P. E.</i> "					44' 54.6	44' 44.0	44' 61.2
General Means					8 44' 66.3	8 44' 55.1	8 44' 69.0
Whence ... ..					$\delta L_N = 8 44' 66.3$	$\delta L_N = 8 44' 62.1$	
Correction for Relative Personal Equation,					$H_N - S_N = + 0' 00.7$	$H_N - S_N = + 0' 00.7$	
					$\Delta L_N = 8 44' 67.0$	$\Delta L_N = 8 44' 62.8$	
Again ... ..					$\delta L_S = 8 44' 68.7$	$\delta L_S = 8 44' 64.5$	
Correction for Relative Personal Equation,					$H_S - S_S = - 0' 01.6$	$H_S - S_S = - 0' 01.6$	
					$\Delta L_S = 8 44' 67.1$	$\Delta L_S = 8 44' 62.9$	
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S)$					$= 8 44' 67.1$	$\Delta L = 8 44' 62.8$	
$\rho = + 0' 06.6$						$\rho = + 0' 07.0$	

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

HAZARIBAGH (E), AND FYZABAD (W).									
Astronomical Date	Instrumental Position at		By Clock Comparisons				By Transits at both Stations with the same Clock		
			Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
	E	W					E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1882			<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>
January 4	<i>I. P. E.</i>	<i>I. P. W.</i>	6 27 4	+ 2 26'779	10 28'932	12 55'711	12 55'634	12 55'709	
" "	"	"	50 20	26'646	29'029	55'675	55'661	55'745	
" 5	"	"	26 59	21'728	34'050	55'778	55'753	55'754	
" "	"	"	50 15	21'587	34'141	55'728	55'702	55'709	
" 6	"	"	26 48	16'103	39'541	55'644	55'839	55'719	
" "	"	"	50 10	15'975	39'639	55'614	55'703	55'727	
" 7	<i>I. P. W.</i>	<i>I. P. E.</i>	26 56	9'711	45'910	55'621	55'446	55'680	
" "	"	"	50 18	9'505	46'021	55'526	55'462	55'632	
" 9	"	"	26 38	1 57'988	57'783	55'771	55'630	55'860	
" "	"	"	49 54	57'875	57'877	55'752	55'667	55'861	
" 10	"	"	26 33	53'405	11 2'509	55'914	55'783	55'954	
" "	"	"	49 49	53'359	2'594	55'953	55'796	55'969	
Mean values for instrumental positions	<i>I. P. E.</i>	<i>I. P. W.</i>	...	...	...	12 55'692	12 55'715	12 55'727	
	<i>I. P. W.</i>	<i>I. P. E.</i>	...	...	...	55'756	55'631	55'826	
General Means						12 55'724	12 55'673	12 55'777	
Whence ... .. $\delta L_N = 12 55'724$ Correction for Relative Personal Equation, $S_N - H_N = - 0'016$ $\Delta L_N = 12 55'708$ Again ... .. $\delta L_S = 12 55'706$ Correction for Relative Personal Equation, $S_S - H_S = + 0'011$ $\Delta L_S = 12 55'717$							$\delta L_N = 12 55'725$ $S_N - H_N = - 0'016$ $\Delta L_N = 12 55'709$ $\delta L_S = 12 55'707$ $S_S - H_S = + 0'011$ $\Delta L_S = 12 55'718$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 12 55'713$ $\rho = + 0'073$							$\Delta L = 12 55'714$ $\rho = + 0'052$		

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

HAZARIBAGH (E), AND JUBBULPORE (W).							
Astronomical Date	In- strumental Position at Both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock	
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference D at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with	
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$
1882		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>
January 19	<i>I. P. W.</i>	7 34 17	+ 1 56.144	19 44.768	21 40.912	21 40.643	21 40.978
" "	"	54 37	55.859	44.978	40.837	40.733	40.970
" 20	"	39 56	41.066	59.835	40.901	40.663	41.020
" "	"	57 55	40.909	20 0.027	40.936	40.711	40.994
" 21	"	36 46	26.275	14.654	40.929	40.791	41.091
" "	"	56 29	26.101	14.859	40.960	40.792	41.035
" 24	<i>I. P. E.</i>	36 30	0 44.017	56.884	40.901	40.872	40.949
" "	"	56 14	43.768	57.087	40.855	40.776	40.906
" 25	"	37 11	29.134	21 11.795	40.929	40.855	40.969
" "	"	56 10	28.799	12.006	40.805	40.806	40.929
" 26	"	36 21	13.629	27.451	41.080	41.145	41.123
" "	"	56 5	13.356	27.680	41.036	41.001	41.051
Mean values for instrumental position <i>I. P. W.</i> at both stations					21 40.913	21 40.722	21 41.015
" " <i>I. P. E.</i> "					40.934	40.909	40.988
General Means					21 40.923	21 40.816	21 41.002
Whence ... .. $\delta L_N = 21 40.923$ Correction for Relative Personal Equation, $S_N - H_N = - 0.016$ $\Delta L_N = 21 40.907$						$\delta L_N = 21 40.909$ $S_N - H_N = - 0.016$ $\Delta L_N = 21 40.893$	
Again ... .. $\delta L_S = 21 40.925$ Correction for Relative Personal Equation, $S_S - H_S = + 0.011$ $\Delta L_S = 21 40.936$						$\delta L_S = 21 40.911$ $S_S - H_S = + 0.011$ $\Delta L_S = 21 40.922$	
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 21 40.922$ $\rho = + 0.099$						$\Delta L = 21 40.907$ $\rho = + 0.093$	

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ 

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AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

CALCUTTA (E), AND HAZARIBAGH (W).									
Astronomical Date	Instrumental Position at		By Clock Comparisons				By Transits at both Stations with the same Clock		
			Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
	E	W					E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1882			<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
February 8	<i>I. P. W.</i>	<i>I. P. E.</i>	9 8 33	- 4 16.380	16 13.253	11 56.873	11 56.902	11 56.877	
" "	"	"	28 45	16.110	13.124	57.014	56.867	56.922	
" 9	"	"	7 33	6.908	3.689	56.781	56.624	56.690	
" "	"	"	28 6	6.836	3.543	56.707	56.742	56.865	
" 10	"	"	8 2	3 57.506	15 54.174	56.668	56.669	56.830	
" "	"	"	28 14	57.307	54.048	56.741	56.750	56.809	
" 13	<i>I. P. E.</i>	<i>I. P. W.</i>	6 8	31.632	28.320	56.688	56.596	56.676	
" "	"	"	27 31	31.569	28.168	56.599	56.651	56.677	
" 14	"	"	7 4	21.900	18.462	56.562	56.662	56.633	
" "	"	"	27 17	21.736	18.330	56.594	56.442	56.530	
" 16	"	"	6 35	5.051	1.829	56.778	56.648	56.890	
" "	"	"	26 48	5.045	1.726	56.681	56.708	56.653	
Mean values for instrumental positions	<i>I. P. W.</i>	<i>I. P. E.</i>	...	...	...	11 56.797	11 56.759	11 56.832	
"	<i>I. P. E.</i>	<i>I. P. W.</i>	...	...	...	56.650	56.618	56.677	
General Means						11 56.724	11 56.689	11 56.754	
Whence ... .. $\delta L_N = 11 56.724$ Correction for Relative Personal Equation, $H_N - S_N = + 0.019$ $\Delta L_N = 11 56.743$							$\delta L_N = 11 56.721$ $H_N - S_N = + 0.019$ $\Delta L_N = 11 56.740$		
Again ... .. $\delta L_S = 11 56.716$ Correction for Relative Personal Equation, $H_S - S_S = - 0.006$ $\Delta L_S = 11 56.710$							$\delta L_S = 11 56.713$ $H_S - S_S = - 0.006$ $\Delta L_S = 11 56.707$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 11 56.726$ $\rho = + 0.052$							$\Delta L = 11 56.724$ $\rho = + 0.033$		



TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.

JALPAIGURI (E), AND HAZARIBAGH (W).								
Astronomical Date	In- strumental Position at Both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock T <sub>E</sub>	Corrected Difference of Observed Times at Epoch T <sub>E</sub> Reduced to Stars of North Aspect M <sub>N</sub>	Deduced Clock Difference D at Epoch T <sub>E</sub>	Apparent Difference of Longitude by Stars of North Aspect δL <sub>N</sub> = D + M <sub>N</sub>	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock = δL <sub>N</sub> - ρ	W Clock = δL <sub>N</sub> + ρ	
1882		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
February	25	<i>I. P. W.</i>	10 3 9	- 1 8.544	14 35.563	13 27.019	13 26.948	13 27.105
"	"	"	28 42	8.481	35.423	26.942	26.922	27.015
March	1	"	4 14	0 40.547	7.481	26.934	26.881	26.970
"	"	"	23 58	40.493	7.398	26.905	26.862	27.015
"	2	"	4 2	34.723	1.664	26.941	27.038	27.088
"	"	"	23 46	34.510	1.585	27.075	26.921	27.162
"	3	<i>I. P. E.</i>	3 50	28.749	13 55.867	27.118	26.946	27.215
"	"	"	23 24	28.539	55.785	27.246	27.009	27.195
"	4	"	3 37	20.814	48.196	27.382	27.119	27.278
"	"	"	23 21	20.696	48.068	27.372	27.281	27.493
"	5	"	3 24	12.182	39.229	27.047	26.880	27.228
"	"	"	23 8	11.967	39.116	27.149	26.940	27.157
Mean values for instrumental position <i>I. P. W.</i> at both stations						13 26.969	13 26.929	13 27.059
" " <i>I. P. E.</i> "						27.219	27.029	27.261
General Means						13 27.094	13 26.979	13 27.160
Whence ... ..						<i>m s</i> δL <sub>N</sub> = 13 27.094	<i>m s</i> δL <sub>N</sub> = 13 27.070	
Correction for Relative Personal Equation, H <sub>N</sub> - S <sub>N</sub> = + 0.019						<hr/> ΔL <sub>N</sub> = 13 27.113	<hr/> ΔL <sub>N</sub> = 13 27.089	
Again ... ..						<hr/> δL <sub>S</sub> = 13 27.082	<hr/> δL <sub>S</sub> = 13 27.058	
Correction for Relative Personal Equation, H <sub>S</sub> - S <sub>S</sub> = - 0.006						<hr/> ΔL <sub>S</sub> = 13 27.076	<hr/> ΔL <sub>S</sub> = 13 27.052	
Finally ΔL = ½ (ΔL <sub>N</sub> + ΔL <sub>S</sub> ) =						<i>m s</i> 13 27.095	<i>m s</i> 13 27.070	
ρ = + 0.075							ρ = + 0.091	

**TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$**   
**AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1881-82.**

JALPAIGURI (E), AND CALCUTTA (W).										
Astronomical Date	Instrumental Position at		By Clock Comparisons				By Transits at both Stations with the same Clock			
	E	W	Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference D at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with			
							E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$		
1882			<i>h m s</i>	<i>m s</i>	<i>m s s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
March	17	P. E. I. P. W.	11 6 57	+ 0 17.050	1 13 125	1 30.175	1 30.191	1 30.264		
"	"	" "	31 50	17.235	12.970	30.205	30.107	30.274		
"	19	" "	6 32	35.843	0 54.280	30.123	30.119	30.206		
"	"	" "	31 25	35.941	54 118	30.059	30 110	30 180		
"	22	" "	4 40	1 2.347	27.867	30.214	30 211	30 349		
"	"	" "	31 39	2.494	27.698	30 192	30 189	30.351		
April	4	P. W. I. P. E.	12 11 5	0 1.470	1 29.103	30.573	30.101	30 6.38		
"	"	" "	29 17	1.614	28.965	30.579	30.589	30.720		
"	5	" "	10 1	12.344	18.188	30.532	30.391	30 668		
"	"	" "	28 34	12.584	18.058	30.642	30.490	30.685		
"	6	" "	11 8	21.775	8.752	30.527	30.284	30.653		
"	"	" "	25 18	21.888	8.658	30.546	30.507	30.661		
Mean values for instrumental positions	}	P. E. I. P. W.	...	...	...	...	1 30.161	1 30.155	1 30.271	
		P. W. I. P. E.	...	...	...	...	...	30.567	30.394	30 671
General Means						...	1 30.364	1 30.274	1 30.471	
Hence ... ..						$\delta L_N = 1 \ 30.364$		$\delta L_N = 1 \ 30.373$		
Correction for Relative Personal Equation,						$H_N - S_N = + \ 0.019$		$H_N - S_N = + \ 0.019$		
						$\Delta L_N = 1 \ 30.383$		$\Delta L_N = 1 \ 30.392$		
gain ... ..						$\delta L_S = 1 \ 30.409$		$\delta L_S = 1 \ 30.418$		
Correction for Relative Personal Equation,						$H_S - S_S = - \ 0.006$		$H_S - S_S = - \ 0.006$		
						$\Delta L_S = 1 \ 30.403$		$\Delta L_S = 1 \ 30.412$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) =$						$1 \ 30.393$		$\Delta L = 1 \ 30.402$		
$\rho = + \ 0.041$								$\rho = + \ 0.099$		



**ELECTRO-TELEGRAPHIC LONGITUDES**

**1882-83.**

**INDIAN ARCS**

**ABSTRACT OF THE OBSERVATIONS**

**AND**

**REDUCTION OF THE RESULTS.**

# N O T E .



An explanation of *Table I, Abstract of Determinations of Collimation and Level Correction-Constants*, will be found at page 2 of the Abstract of the Observations and Reduction of the Results for 1881-82.

During the Recess of 1882 the telescopes were sent to the Mathematical Instrument Office in Calcutta to be overhauled and have the telescope tubes strengthened. Each telescope has two eye-ends denominated respectively A and B, and up to the end of the Season of 1881-82 the eye-ends denominated A had been used with both telescopes. When the telescopes were put together in Calcutta about October 1882, the eye-ends denominated B were attached to both telescopes and have been employed ever since.

The eye-ends carry the wire diaphragms and the telescope micrometers, so it follows that these were also changed, and as the micrometer of Telescope No. 2 has a reverse motion with eye-end B to what it has with eye-end A, the values of  $(C_o - C_s)$  and of  $(C_o - M)$  in *Table I* have contrary signs for positions *I. P. E.* and *I. P. W.* with this Telescope to what they had in April 1882, but the signs remain unaltered for Telescope No. 1. Hence in *Table I*

with Telescope No. 1  $\left\{ \begin{matrix} c_1 = C_o - C_s \\ b = C_o - M \end{matrix} \right\}$  for position *I. P. E.* and  $\left\{ \begin{matrix} c_1 = C_s - C_o \\ b = M - C_o \end{matrix} \right\}$  for position *I. P. W.*

with Telescope No. 2  $\left\{ \begin{matrix} c_1 = C_s - C_o \\ b = M - C_o \end{matrix} \right\}$  for position *I. P. E.* and  $\left\{ \begin{matrix} c_1 = C_o - C_s \\ b = C_o - M \end{matrix} \right\}$  for position *I. P. W.*

Mean values of  $c_1$  and  $b$  have generally been used for each day of observation at each station: sometimes two or even three values of  $b$  have been employed and occasionally the mean value of  $b$  has been obtained by weighting the single values empirically as explained in the footnotes.

The value of one division of the micrometer of Telescope No. 1 was determined in December 1882 to be =  $0^{\circ}.02242$ .

The value of one division of the micrometer of Telescope No. 2 was determined in November 1881 to be =  $0^{\circ}.02259$ .

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 177

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b
1882			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1882			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Dec. 2		<i>I. P. E.</i>	31'7	32'7	+ 1'0				Dec. 2		<i>I. P. E.</i>	30'0	30'0	0'0		31'5	- 1'5
			32'7	32'7	0'0		33'7	+ 1'0				29'6	30'0	- 0'4		32'4	- 2'8
			30'2	32'7	+ 2'5	+ 0'4	33'1	+ 2'9				29'9	30'0	- 0'1	- 1'0	33'2	- 3'3
" 4		<i>I. P. W.</i>	35'0	35'0	0'0		34'4	+ 0'6	" 4		<i>I. P. W.</i>	30'1	30'0	- 0'1		35'0	+ 4'9
			36'1	35'0	+ 1'1		34'7	+ 1'4				29'6	30'0	+ 0'4	- 0'7	35'9	+ 6'3
			36'1	35'0	+ 1'1	- 0'1	35'6	+ 0'5									
" 5		<i>I. P. E.</i>	35'3	35'3	0'0		36'0	+ 0'7	" 5		<i>I. P. E.</i>	29'9	30'0	- 0'1		18'0	+ 11'9
			34'9	35'3	+ 0'4		34'7	- 0'2				29'7	30'0	- 0'3	- 1'0	17'6	+ 12'1
			35'1	35'3	+ 0'2	- 0'6	34'9	- 0'2									
" 6		<i>I. P. W.</i>	36'4	36'4	0'0		35'6	+ 0'8	" 6		<i>I. P. W.</i>	29'5	30'0	+ 0'5		28'7	- 0'8
			35'1	36'4	- 1'3		33'9	+ 1'2				29'9	30'0	+ 0'1	- 0'5	30'3	+ 0'4
			35'7	36'4	- 0'7	- 1'5	34'5	+ 1'2									
" 7		<i>I. P. E.</i>	39'2	39'2	0'0		41'5	+ 2'3	" 7		<i>I. P. E.</i>	28'9	30'0	- 1'1		26'7	+ 2'2
			35'2	39'2	+ 4'0		38'8	+ 3'6				29'3	30'0	- 0'7		28'8	+ 0'5
			35'7	39'2	+ 3'5	+ 1'7	39'2	+ 3'5				30'0	30'0	0'0	- 1'4	29'9	+ 0'1
" 8		<i>I. P. W.</i>	35'5	35'5	0'0		35'5	0'0	" 8		<i>I. P. W.</i>	29'9	30'0	+ 0'1		29'2	- 0'7
			33'9	35'5	- 1'6		35'2	- 1'3				29'9	30'0	+ 0'1	- 0'7	29'3	- 0'6
			34'6	35'5	- 0'9	- 1'6	35'2	- 0'6									
" 9		<i>I. P. E.</i>	36'6	36'6	0'0		37'6	+ 1'0	" 9		<i>I. P. E.</i>	29'7	30'0	- 0'3		30'3	- 0'6
			35'7	36'6	+ 0'9		35'4	- 0'3				29'3	30'0	- 0'7	- 1'3	31'2	- 1'9
			35'6	36'6	+ 1'0	- 0'2	35'0	- 0'6									
" 11		<i>I. P. W.</i>	35'0	35'0	0'0		34'7	+ 0'3	" 11		<i>I. P. W.</i>	30'8	30'0	- 0'8		28'6	- 2'2
			33'9	35'0	- 1'1		34'1	- 0'2				30'6	30'0	- 0'6	- 1'5	29'7	- 0'9
			32'7	35'0	- 2'3	- 1'9	34'1	- 1'4									
Dec. 21		<i>I. P. W.</i>	32'0	32'0	0'0		31'0	+ 1'0	Dec. 21		<i>I. P. W.</i>	22'7	25'0	+ 2'3			
			34'9	32'0	+ 2'9							21'6	25'0	+ 3'4	+ 1'9	23'4*	+ 1'2†
			33'1	32'0	+ 1'1	+ 0'5	31'5	+ 1'6									
" 26		<i>I. P. E.</i>	31'0	31'0	0'0		31'3	+ 0'3‡	" 26		<i>I. P. E.</i>	26'5	25'0	+ 1'5		25'0	+ 1'5
			28'3	31'0	+ 2'7		32'1	+ 3'8				25'7	25'0	+ 0'7	+ 0'2	26'1	- 0'4
			29'5	31'0	+ 1'5	+ 0'6											
" 27		<i>I. P. W.</i>	36'5	36'5	0'0		37'1	- 0'6	" 27		<i>I. P. W.</i>	21'6	25'0	+ 3'4		24'5	+ 2'9
			35'6	36'5	- 0'9	- 1'3	37'5	- 1'9				18'8	25'0	+ 6'2	+ 3'9	26'0	+ 7'2
" 28		<i>I. P. E.</i>	31'2	31'2	0'0		31'1	- 0'1	" 28		<i>I. P. E.</i>	26'8	25'0	+ 1'8		22'3	+ 4'5
			28'4	31'2	+ 2'8	+ 0'6	29'6	+ 1'2				28'2	25'0	+ 3'2	+ 1'6	19'7	+ 8'5
" 29		<i>I. P. W.</i>	35'9	35'9	0'0		36'5	- 0'6	" 29		<i>I. P. W.</i>	20'9	25'0	+ 4'1		26'9	+ 6'0
			34'3	35'9	- 1'6	- 1'6	35'0	- 0'7	1883			22'7	25'0	+ 2'3	+ 2'3	27'9	+ 5'2
1883									Jan. 2		<i>I. P. E.</i>	22'8	25'0	- 2'2		27'2	- 3'6†
Jan. 2		<i>I. P. E.</i>	31'2	31'2	0'0		31'0	- 0'2				25'4	25'0	+ 0'4			
			31'5	31'2	- 0'3	- 1'0	29'6	- 1'9				22'7	25'0	- 2'3	- 2'3	28'2	- 4'6†

\* Owing to the tremor of the ground in Calcutta caused by passing vehicles, the value of M could not, sometimes, be determined until late in the night.  
† Using a mean value of C<sub>0</sub>. ‡ Half weight is assigned to this value.

178 *TABLE I.* ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS.

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b
1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Jan. 12		<i>I. P. E.</i>	3'2 5'1	5'0	- 1'8 + 0'1		2'5 3'1 2'7	+ 0'7 + 2'0 + 1'4*	Jan. 12		<i>I. P. E.</i>	31'2 30'8	31'2	0'0 + 0'4		31'2 30'1	0'0 - 0'7
" 13		<i>I. P. W.</i>	3'8 5'3	5'0	+ 1'2 - 0'3		1'3 2'0	- 2'5 - 3'3	" 13		<i>I. P. W.</i>	34'5 31'1	34'5	0'0 - 3'4		35'1 36'1	- 0'6 - 5'0
" 14		<i>I. P. E.</i>	5'1 5'7	5'0	+ 0'1 + 0'7		3'3 4'0	+ 1'8 + 1'7	" 14		<i>I. P. E.</i>	32'4 32'6	32'4	0'0 - 0'2		32'8 32'3	+ 0'4 - 0'3
" 15		<i>I. P. W.</i>	7'1 7'4	5'0	- 2'1 - 2'4		3'7 6'0	- 3'4 - 1'4	" 15		<i>I. P. W.</i>	31'2 31'0	31'0	+ 0'2 0'0		31'7 31'5	- 0'5 - 0'5
" 17		<i>I. P. E.</i>	3'8 4'3	5'0	- 1'2 - 0'7		4'7 4'0	- 0'9 + 0'3	" 17		<i>I. P. E.</i>	34'6 31'7	34'0	- 0'6 + 2'3		34'7 35'1	+ 0'1 + 3'4
" 18		<i>I. P. W.</i>	3'7 5'8	5'0	+ 1'3 - 0'8		4'6 6'0	+ 0'9 + 0'2	" 18		<i>I. P. W.</i>	30'1 29'5	30'0	+ 0'1 - 0'5		31'2 29'6	- 1'1 - 0'1
CHITTAGONG (Telescope No. 1)									JALPAIGURI (Telescope No. 2)								
Jan. 23		<i>I. P. W.</i>	5'4 4'4	5'0	- 0'4 + 0'6		2'2 3'2	- 3'2 - 1'2	Jan. 23		<i>I. P. W.</i>	22'4 21'0	22'0	+ 0'4 - 1'0		25'3 25'4	- 2'9 - 4'4
" 24		<i>I. P. E.</i>	5'0 6'6	5'0	0'0 + 1'6		4'0 4'8	+ 1'0 + 1'8	" 24		<i>I. P. E.</i>	28'3 23'2 25'7	28'0	- 0'3 + 4'8 + 2'3		32'5 32'2	+ 4'2 + 6'5
" 25		<i>I. P. W.</i>	3'7 4'4	5'0	+ 1'3 + 0'6		4'9 4'9	+ 1'2 + 0'5	" 25		<i>I. P. W.</i>	24'2 23'8	24'0	+ 0'2 - 0'2		22'9 20'5	+ 1'3 + 3'3
" 26		<i>I. P. E.</i>	3'4 4'8	5'0	- 1'6 - 0'2		3'8 6'1	- 0'4 - 1'3	" 26		<i>I. P. E.</i>	20'6 21'8	21'0	+ 0'4 - 0'8		31'9 31'0	+ 11'3 + 9'2
" 28		<i>I. P. W.</i>	3'8 4'2	5'0	+ 1'2 + 0'8		2'7 2'6	- 1'1 - 1'6	" 28		<i>I. P. W.</i>	18'9 23'5 20'1	19'0	- 0'1 + 4'5 + 1'1		19'3 18'6 19'5	- 0'4 + 4'9 + 0'6
" 29		<i>I. P. E.</i>	3'0 4'4	5'0	- 2'0 - 0'6		3'3 3'5	- 0'3 + 0'9	" 29		<i>I. P. E.</i>	23'3 20'5 22'9	23'0	- 0'3 + 2'5 + 0'1		24'6 22'9 24'9	+ 1'3 + 2'4 + 2'0
" 30		<i>I. P. W.</i>	5'6 6'2	5'0	- 0'6 - 1'2		5'4 6'0	- 0'2 - 0'2	" 30		<i>I. P. W.</i>	22'8 23'8 22'6 21'6	23'0	- 0'2 + 0'8 - 0'4 - 1'4		24'5 23'5 23'5	- 1'7 - 0'9 - 1'9
CHITTAGONG (Telescope No. 1)									CALCUTTA (Telescope No. 2)								

\* Using a mean value of C<sub>0</sub>.

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 179

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b
1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Feb. 8		<i>I. P. E.</i>	5'3	5'0	+ 0'3		3'2	+ 2'3	Feb. 8		<i>I. P. E.</i>	47'5	47'0	- 0'5		45'9	- 1'6
			7'4	5'0	+ 2'4	+ 0'5	2'9	+ 4'4				46'6	47'0	+ 0'4		44'9	- 1'7
												47'3	47'0	- 0'3	- 0'9	45'1	- 2'2
" 9		<i>I. P. W.</i>					12'1	+ 5'2*	" 9		<i>I. P. W.</i>	45'7	47'0	- 1'3		50'0	- 4'3
			6'2	5'0	- 1'2		5'1	- 1'1				47'2	47'0	+ 0'2		50'9	- 3'7
			7'5	5'0	- 2'5	- 2'8	5'2	- 2'3				45'6	47'0	- 1'4	- 1'6	49'9	- 4'3
" 10		<i>I. P. E.</i>	6'6	5'0	+ 1'6	+ 0'7†	12'6	- 6'0	" 10		<i>I. P. E.</i>	48'2	47'0	- 1'2		44'7	- 3'5
			6'6	15'0	- 8'4	- 9'3‡	12'9	- 6'3				47'4	47'0	- 0'4		45'0	- 2'4
												46'5	47'0	+ 0'5	- 1'2	44'4	- 2'1
" 11		<i>I. P. W.</i>	8'1	5'0	- 3'1		2'8	- 5'4§	" 11		<i>I. P. W.</i>	48'0	47'0	+ 1'0		51'5	- 3'5
			7'9	5'0	- 2'9							46'1	47'0	- 0'9		50'9	- 4'8
			8'6	5'0	- 3'6	- 4'1	3'8	- 4'4§				45'7	47'0	- 1'3		50'6	- 4'9
												46'1	47'0	- 0'9	- 1'3		
" 13		<i>I. P. E.</i>	6'9	5'0	+ 1'9		13'1	- 5'7	" 13		<i>I. P. E.</i>	48'0	47'0	- 1'0		46'6	- 1'4
			7'8	5'0	+ 2'8	+ 1'5	12'3	- 4'8				48'7	47'0	- 1'7		46'7	- 2'0
												46'7	47'0	+ 0'3	- 1'6	47'5	+ 0'8
" 14		<i>I. P. W.</i>	9'1	5'0	- 4'1		6'5	- 2'6	" 14		<i>I. P. W.</i>	46'5	47'0	- 0'5		41'1	+ 5'4
			8'1	5'0	- 3'1	- 4'5	4'3	- 3'8				45'6	47'0	- 1'4		40'5	+ 5'1
												45'4	47'0	- 1'6	- 2'0	40'3	+ 5'1
Feb. 22		<i>I. P. W.</i>	307'1	305'0	- 2'1		305'9	- 1'2	Feb. 22		<i>I. P. W.</i>	20'8	22'0	- 1'2		20'2	+ 0'6
			306'5	305'0	- 1'5	- 2'7	305'9	- 0'6				21'9	22'0	- 0'1		20'7	+ 1'2
												21'7	22'0	- 0'3	- 1'3	21'0	+ 0'7
" 23		<i>I. P. E.</i>	307'3	305'0	+ 2'3		310'1	- 2'8	" 23		<i>I. P. E.</i>	23'8	23'0	- 0'8		22'1	- 1'7
			308'5	305'0	+ 3'5	+ 2'0	311'5	- 3'0				23'3	23'0	- 0'3		21'9	- 1'4
												22'2	23'0	+ 0'8	- 0'9	20'7	- 1'5
" 24		<i>I. P. W.</i>	306'4	305'0	- 1'4		302'4	- 4'0	" 24		<i>I. P. W.</i>	22'5	22'0	+ 0'5		21'9	+ 0'6
			309'3	305'0	- 4'3	- 3'8	303'2	- 6'1				20'9	22'0	- 1'1		22'4	- 1'5
												21'7	22'0	- 0'3	- 1'1	22'8	- 1'1
" 28		<i>I. P. E.</i>	309'8	305'0	+ 4'8		300'3	+ 9'5	" 28		<i>I. P. E.</i>	22'0	22'0	0'0		23'7	+ 1'7
			307'6	305'0	+ 2'6	+ 2'8	298'3	+ 9'3				23'4	22'0	- 1'4		24'2	+ 0'8
												22'7	22'0	- 0'7	- 1'5	22'9	+ 0'2
Mar. 2		<i>I. P. W.</i>	306'4	305'0	- 1'4		312'2	+ 5'8	Mar. 2		<i>I. P. W.</i>	24'5	23'0	+ 1'5		21'1	+ 3'4
			306'2	305'0	- 1'2	- 2'2	312'2	+ 6'0				22'1	23'0	- 0'9		21'6	+ 0'5
												23'4	23'0	+ 0'4	- 0'5	21'3	+ 2'1
" 8		<i>I. P. E.</i>	308'5	305'0	+ 3'5		299'3	+ 9'2	" 8		<i>I. P. E.</i>	20'9	21'0	+ 0'1		21'2	+ 0'3
			308'5	305'0	+ 3'5	+ 2'6	299'6	+ 8'9				21'3	21'0	- 0'3		21'3	0'0
												22'1	21'0	- 1'1	- 1'2	21'4	- 0'7

\* For  $\lambda$  Ursæ Minoris only, obtained by using a mean value of C<sub>0</sub>; the leveling screws were altered after this determination and b was re-determined. † For all stars up to No. 3068. ‡ For subsequent stars. § Using a mean value of C<sub>0</sub>. || Giving half weight to the first value of M and thus finding a mean M.



180 TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS.

Astronl. Date	Station	Instru- mental Position	Collimation				Level		Astronl. Date	Station	Instru- mental Position	Collimation				Level	
			C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b				C <sub>0</sub>	C <sub>s</sub>	c <sub>1</sub>	c	M	b
1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	1883			<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>	<i>d</i>
Mar. 14		<i>I. P. E.</i>	302.8	300.0	+ 2.8		298.1	+ 4.3*	Mar. 14		<i>I. P. E.</i>	22.7	23.0	+ 0.3		23.0	+ 0.3
			301.5	300.0	+ 1.5							20.4	23.0	+ 2.6		23.1	+ 2.7
			302.9	300.0	+ 2.9	+ 1.6	298.3	+ 4.1*				23.0	23.0	0.0	+ 0.2	23.3	+ 0.3
" 15		<i>I. P. W.</i>	299.1	300.0	+ 0.9		308.4	+ 9.3	" 15		<i>I. P. W.</i>	20.1	21.0	- 0.9		19.2	+ 0.9
			299.9	300.0	+ 0.1	- 0.3	308.3	+ 8.4				19.3	21.0	- 1.7		19.6	- 0.3
												18.5	21.0	- 2.5	- 2.5	18.2	+ 0.3
" 16		<i>I. P. E.</i>	301.7	300.0	+ 1.7		298.9	+ 2.8	" 16		<i>I. P. E.</i>	23.7	24.0	+ 0.3		22.8	- 0.9
			301.3	300.0	+ 1.3	+ 0.7	299.5	+ 1.8				21.9	24.0	+ 2.1		20.8	- 1.1
												22.1	24.0	+ 1.9	+ 0.6	20.9	- 1.2
" 17		<i>I. P. W.</i>	298.4	300.0	+ 1.6		297.8	- 0.6	" 17		<i>I. P. W.</i>	22.5	22.0	+ 0.5		22.6	- 0.1
			299.5	300.0	+ 0.5	+ 0.2	298.5	- 1.0				20.8	22.0	- 1.2		23.1	- 2.3
												20.4	22.0	- 1.6	- 1.6	20.9	- 0.5
" 18		<i>I. P. E.</i>	299.7	300.0	- 0.3		301.6	- 1.9	" 18		<i>I. P. E.</i>	24.8	25.0	+ 0.2		24.9	+ 0.1
			299.3	300.0	- 0.7	- 1.3	299.5	- 0.2				23.7	25.0	+ 1.3		23.9	+ 0.2
												23.0	25.0	+ 2.0	+ 0.4	24.1	+ 1.1
" 19		<i>I. P. W.</i>	297.2	300.0	+ 2.8		305.1	+ 7.5*	" 19		<i>I. P. W.</i>	21.6	21.0	+ 0.6		20.8	+ 0.8
			298.0	300.0	+ 2.0	+ 1.6	307.9	+ 10.3*				21.3	21.0	+ 0.3		21.1	+ 0.2
							308.5	+ 10.9*				20.4	21.0	- 0.6	- 0.7	21.3	- 0.9
" 20		<i>I. P. E.</i>	298.3	300.0	- 1.7		297.2	+ 1.7*	" 20		<i>I. P. E.</i>	24.4	25.0	+ 0.6		24.0	- 0.4
							297.9	+ 1.0*				23.9	25.0	+ 1.1		23.7	- 0.2
			299.5	300.0	- 0.5	- 1.9	297.4	+ 1.5*				21.9	25.0	+ 3.1	+ 0.8	22.2	+ 0.3
Mar. 28		<i>I. P. E.</i>	303.3	300.0	+ 3.3		296.4	+ 6.9	Mar. 28		<i>I. P. E.</i>	40.7	41.0	+ 0.3		40.6	- 0.1
			301.6	300.0	+ 1.6		294.8	+ 6.8				39.2	41.0	+ 1.8		39.7	+ 0.5
								+ 7.6*				39.4	41.0	+ 1.6	+ 0.4	39.7	+ 0.3
			302.2	300.0	+ 2.2	+ 1.6	295.0	+ 7.4*									
" 29		<i>I. P. W.</i>					300.2	- 0.6*	" 29		<i>I. P. W.</i>	42.1	42.0	+ 0.1		42.6	- 0.5
			300.7	300.0	- 0.7		301.2	+ 0.4*				40.0	42.0	- 2.0	- 1.8	41.8	- 1.8
			300.8	300.0	- 0.8	- 1.6	302.8	+ 2.0*									
" 30		<i>I. P. E.</i>					301.4	- 0.3*	" 30		<i>I. P. E.</i>	39.4	40.0	+ 0.6		39.1	- 0.3
			301.4	300.0	+ 1.4		303.0	- 1.9*				40.5	40.0	- 0.5		38.0	- 2.5
			300.8	300.0	+ 0.8	+ 0.3	302.7	- 1.6*				40.5	40.0	- 0.5	- 0.9	38.1	- 2.4
" 31		<i>I. P. W.</i>	298.0	300.0	+ 2.0		305.9	+ 7.9	" 31		<i>I. P. W.</i>	42.5	42.0	+ 0.5		42.7	- 0.2
			299.2	300.0	+ 0.8	+ 0.6	306.5	+ 7.3				41.5	42.0	- 0.5		41.7	- 0.2
												41.8	42.0	- 0.2	- 0.9	41.9	- 0.1
Apr. 3		<i>I. P. E.</i>	301.0	300.0	+ 1.0		297.7	+ 3.3	Apr. 3		<i>I. P. E.</i>	37.6	39.0	+ 1.4		36.5	- 1.1
			302.0	300.0	+ 2.0	+ 0.7	297.3	+ 4.7				38.1	39.0	+ 0.9		36.3	- 1.8
												38.0	39.0	+ 1.0	+ 0.3	34.0	- 4.0
" 4		<i>I. P. W.</i>	299.9	300.0	+ 0.1		301.3	+ 1.3*	" 4		<i>I. P. W.</i>	40.0	39.0	+ 1.0		40.4	- 0.4
							302.4	+ 2.4*				41.0	39.0	+ 2.0		40.0	+ 1.0
			300.1	300.0	- 0.1	- 0.8	303.0	+ 3.0*				40.9	39.0	+ 1.9	+ 0.8	40.1	+ 0.8

\* Using a mean value of C<sub>0</sub>.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $\alpha_1$	Arithmetic Mean $\alpha$
										Colli- mation	Level	Pen Equation Q	Approximate Clock Rate					
JALPAIGURI AND FYZABAD JALPAIGURI (Latitude $26^{\circ} 31'$ )	1882 Dec. 2	I.P.E.	E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} h & m & s \\ 3 & 4 & 26.55 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.02 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.05 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	27.65	$\begin{smallmatrix} h & m & s \\ 3 & 3 & 16.81 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -1 & 10.84 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +3.3 \end{smallmatrix}$	+0.8	
			"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 56.37 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.10 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	57.69	$\begin{smallmatrix} s \\ 3 & 28 & 45.15 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 12.54 \end{smallmatrix}$			
			W	$\delta$ Ursæ Minoris	L	3	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 39.40 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.27 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.43 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$		39.87	$\begin{smallmatrix} s \\ 6 & 9 & 39.97 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 0.10 \end{smallmatrix}$			
			"	51 Cephei	U	4	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 43.70 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.32 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.66 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	43.59	$\begin{smallmatrix} s \\ 6 & 45 & 44.99 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 1.40 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.7 \end{smallmatrix}$		
		I.P.W.	E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 31.75 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.09 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.09 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$		32.91	$\begin{smallmatrix} s \\ 3 & 3 & 16.96 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 15.95 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -26.5 \end{smallmatrix}$	-26.9	
			"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 46.10 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.14 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.19 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	47.33	$\begin{smallmatrix} s \\ 3 & 28 & 45.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 2.30 \end{smallmatrix}$			
			W	$\delta$ Ursæ Minoris	L	4	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 41.30 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.23 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.09 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$		42.14	$\begin{smallmatrix} s \\ 6 & 9 & 39.62 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +26 & 57.48 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -27.2 \end{smallmatrix}$		
			"	51 Cephei	U	3	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 28.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.28 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.14 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	27.51	$\begin{smallmatrix} s \\ 6 & 45 & 45.56 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 18.05 \end{smallmatrix}$			
		I.P.E.	E	1364 Gr. 72	L	5	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 29.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.15 \end{smallmatrix}$		30.35	$\begin{smallmatrix} s \\ 3 & 3 & 17.04 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 13.31 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -16.8 \end{smallmatrix}$	-16.8	
			"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 48.53 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.15 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	49.64	$\begin{smallmatrix} s \\ 3 & 28 & 44.97 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 4.67 \end{smallmatrix}$			
			E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 24.58 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.23 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$		25.96	$\begin{smallmatrix} s \\ 3 & 3 & 17.12 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 8.84 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -4.3 \end{smallmatrix}$		-6.5
			"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 50.60 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.35 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.07 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	51.52	$\begin{smallmatrix} s \\ 3 & 28 & 44.91 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 6.61 \end{smallmatrix}$			
	W	$\delta$ Ursæ Minoris	L	3	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 27.50 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.57 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$		29.09	$\begin{smallmatrix} s \\ 6 & 9 & 39.30 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 10.21 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -8.6 \end{smallmatrix}$				
	I.P.W.	"	51 Cephei	U	4	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 30.92 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.70 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.25 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.18 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	29.37	$\begin{smallmatrix} s \\ 6 & 45 & 46.11 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 16.74 \end{smallmatrix}$				
		E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 28.48 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.35 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.21 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$		29.09	$\begin{smallmatrix} s \\ 3 & 3 & 17.19 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 11.90 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -24.4 \end{smallmatrix}$	-25.3		
		"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 42.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.52 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.45 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	44.19	$\begin{smallmatrix} s \\ 3 & 28 & 44.85 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0 & 59.34 \end{smallmatrix}$				
		W	$\delta$ Ursæ Minoris	L	4	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 32.15 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.33 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.45 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.17 \end{smallmatrix}$		31.54	$\begin{smallmatrix} s \\ 6 & 9 & 39.12 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 7.58 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -26.2 \end{smallmatrix}$			
	"	51 Cephei	U	4	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 17.83 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.62 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.68 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.17 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	19.04	$\begin{smallmatrix} s \\ 6 & 45 & 46.39 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 27.35 \end{smallmatrix}$					
	I.P.W.	E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 30.60 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.39 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.05 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$		32.20	$\begin{smallmatrix} s \\ 3 & 3 & 17.27 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 14.93 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -44.9 \end{smallmatrix}$	-45.8		
		"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 36.13 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.59 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.10 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	36.62	$\begin{smallmatrix} s \\ 3 & 28 & 44.79 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0 & 51.83 \end{smallmatrix}$				
		W	$\delta$ Ursæ Minoris	L	4	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 32.83 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.80 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.13 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.16 \end{smallmatrix}$		34.92	$\begin{smallmatrix} s \\ 6 & 9 & 38.93 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 4.01 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -46.6 \end{smallmatrix}$			
		"	51 Cephei	U	4	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 9.73 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.97 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.20 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.16 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	7.48	$\begin{smallmatrix} s \\ 6 & 45 & 46.68 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 39.20 \end{smallmatrix}$				
	I.P.E.	E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 27.45 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.09 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.02 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$		28.70	$\begin{smallmatrix} s \\ 3 & 3 & 17.35 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 11.35 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -32.0 \end{smallmatrix}$	-32.2		
		"	326 "	U	3	-0.2994	$\begin{smallmatrix} s \\ 3 & 29 & 38.53 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.14 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.03 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	39.62	$\begin{smallmatrix} s \\ 3 & 28 & 44.74 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0 & 54.88 \end{smallmatrix}$				
		W	51 Cephei	U	3	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 10.67 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.09 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.11 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.18 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +2.79 \end{smallmatrix}$	12.26	$\begin{smallmatrix} s \\ 6 & 45 & 46.99 \end{smallmatrix}$		$\begin{smallmatrix} s \\ -34.6^* \end{smallmatrix}$			
												$\begin{smallmatrix} s \\ -5.54 \end{smallmatrix}$	3.93		$\begin{smallmatrix} s \\ -30.2^* \end{smallmatrix}$			
	I.P.W.	E	1364 Gr. 72	L	4	+0.2154	$\begin{smallmatrix} s \\ 3 & 4 & 21.98 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.28 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$		23.46	$\begin{smallmatrix} s \\ 3 & 3 & 17.50 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1 & 5.96 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -22.3 \end{smallmatrix}$	-23.9		
		"	326 "	U	4	+0.3502	$\begin{smallmatrix} s \\ 5 & 42 & 14.85 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.91 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.15 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +1.18 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +0.02 \end{smallmatrix}$	39.10	$\begin{smallmatrix} s \\ 3 & 28 & 44.62 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0 & 54.48 \end{smallmatrix}$				
		W	$\delta$ Ursæ Minoris	L	4	-0.4048	$\begin{smallmatrix} s \\ 6 & 18 & 9.65 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.11 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -0.23 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -1.18 \end{smallmatrix}$		17.09	$\begin{smallmatrix} s \\ 6 & 9 & 38.36 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 21.27 \end{smallmatrix}$	$\begin{smallmatrix} s \\ -25.4 \end{smallmatrix}$			
		"	51 Cephei	U								$\begin{smallmatrix} s \\ +0.08 \end{smallmatrix}$	7.21	$\begin{smallmatrix} s \\ 6 & 45 & 47.65 \end{smallmatrix}$	$\begin{smallmatrix} s \\ +27 & 40.44 \end{smallmatrix}$			

\* These values have been obtained by correcting the "Observed Time of Transit" for "Clock Rate" and change in Right Ascension (which corrections are in column 14) and then deducing the change of Azimuth as compared with the values (1) on the 8th December (2) on the 11th December 1882.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
									$h\ m\ s$	$s$	$s$	Pen Equation Q	Approximate Clock Rate	$s$	$h\ m\ s$	$m\ s$	$d$	$d$
		1882		E	1364 Gr. 72	L	3	+0°21'50	3 30 48.13	+0°23	+0°21	+1°31		49°88	3 3 16.76	-27 33.12	+ 8.5	
		Dec. 2	I.P.E.	"	326 "	U	3	-0°29'86	3 56 22.03	-0°35	-0°44	+1°31	+0°02	22°57	3 28 45.16	-27 37.41		+ 3.2
				W	8 Ursæ Minoris	L	3	+0°34'96	6 9 0.13	+0°38	+0°38	+1°31		2°20	6 9 39.97	+ 0 37.77	- 2.1	
				"	51 Cephei	U	3	-0°40'38	6 45 7.87	-0°46	-0°57	-1°31	+0°08	5°61	6 45 44.99	+ 0 39.38		
				E	1364 Gr. 72	L	3	+0°21'50	3 30 50.00	+0°16	-0°47	+1°73		51°42	3 3 16.92	-27 34.50	- 2.0	
		"	I.P.W.	"	326 "	U	5	-0°29'86	3 56 15.94	-0°24	+0°09	+1°73	+0°02	18°44	3 28 45.03	-27 33.41		- 3.9
				W	8 Ursæ Minoris	L	4	+0°34'96	6 8 56.68	+0°27	-0°85	+1°73		57°83	6 9 39.62	+ 0 41.79	- 5.7	
				"	51 Cephei	U	3	-0°40'38	6 44 60.17	-0°32	+1°28	-1°73	+0°08	59°48	6 45 45.56	+ 0 46.08		
				E	1364 Gr. 72	L	3	+0°21'50	3 30 48.87	+0°23	-1°00	+1°74		49°84	3 3 16.99	-27 32.85	- 0.1	
		"	I.P.E.	"	326 "	U	3	-0°29'86	3 56 14.20	-0°35	+2°11	+1°74	+0°02	17°72	3 28 44.97	-27 32.75		- 4.1
				W	8 Ursæ Minoris	L	3	+0°34'96	6 8 55.07	+0°38	-1°81	+1°74		55°38	6 9 39.46	+ 0 44.08	- 8.0	
				"	51 Cephei	U	3	-0°40'38	6 44 55.10	-0°46	+2°75	-1°74	+0°08	55°73	6 45 45.83	+ 0 50.10		
				E	1364 Gr. 72	L	5	+0°21'50	3 30 47.02	+0°12	+0°02	+1°74		48°90	3 3 17.07	-27 31.83	- 6.2	
		"	I.P.W.	"	326 "	U	4	-0°29'86	3 56 11.98	-0°17	-0°04	+1°74	+0°02	13°53	3 28 44.91	-27 28.62		- 9.5
				W	8 Ursæ Minoris	L	4	+0°34'96	6 8 51.68	+0°19	+0°03	+1°74		53°64	6 9 39.30	+ 0 45.66	-12.8	
				"	51 Cephei	U	3	-0°40'38	6 44 52.73	-0°23	-0°05	-1°74	+0°08	50°79	6 45 46.11	+ 0 55.32		
				E	1364 Gr. 72	L	3	+0°21'50	3 30 45.40	+0°32	-0°07	+1°71		47°36	3 3 17.15	-27 30.21	+ 1.1	
		"	I.P.E.	"	326 "	U	3	-0°29'86	3 56 14.20	-0°49	+0°16	+1°71	+0°02	15°60	3 28 44.85	-27 30.75		- 3.8
				W	8 Ursæ Minoris	L	3	+0°34'96	6 8 47.00	+0°53	-0°14	+1°71		49°10	6 9 39.12	+ 0 50.02	- 8.7	
				"	51 Cephei	U	4	-0°40'38	6 44 51.90	-0°65	+0°21	-1°71	+0°08	49°83	6 45 46.39	+ 0 56.56		
				E	1364 Gr. 72	L	4	+0°21'50	3 30 45.33	+0°16	+0°05	+1°72		47°26	3 3 17.22	-27 30.04	- 5.5	
		"	I.P.W.	"	326 "	U	5	-0°29'86	3 56 10.56	-0°24	-0°11	+1°72	+0°02	11°95	3 28 44.79	-27 27.16		- 9.4
				W	8 Ursæ Minoris	L	3	+0°34'96	6 8 44.83	+0°27	+0°09	+1°72		46°91	6 9 38.93	+ 0 52.02	-13.3	
				"	51 Cephei	U	3	-0°40'38	6 44 46.73	-0°32	-0°14	-1°72	+0°08	44°63	6 45 46.68	+ 1 2.05		
				E	1364 Gr. 72	L	3	+0°21'50	3 30 42.33	+0°30	+0°10	+1°71		44°44	3 3 17.30	-27 27.14	- 3.7	
		"	I.P.E.	"	326 "	U	4	-0°29'86	3 56 8.88	-0°45	-0°21	+1°71	+0°02	9°95	3 28 44.74	-27 25.21		- 9.5
				W	8 Ursæ Minoris	L	3	+0°34'96	6 8 41.50	+0°50	+0°18	+1°71		43°89	6 9 38.74	+ 0 54.85	-15.2	
				"	51 Cephei	U	3	-0°40'38	6 44 43.17	-0°60	-0°27	-1°71	+0°08	40°67	6 45 46.99	+ 1 6.32		
				E	1364 Gr. 72	L	3	+0°21'50	3 30 42.90	+0°35	+0°12	+1°72		45°09	3 3 17.46	-27 27.63	-14.0	
		"	I.P.W.	"	326 "	U	4	-0°29'86	3 56 4.08	-0°52	-0°26	+1°72	+0°02	5°04	3 28 44.62	-27 20.42		-17.7
				W	8 Ursæ Minoris	L	3	+0°34'96	6 8 36.37	+0°57	+0°23	+1°72		38°89	6 9 38.36	+ 0 59.47	-21.3	
				"	51 Cephei	U	3	-0°40'38	6 44 34.80	-0°70	-0°34	-1°72	+0°08	32°12	6 45 47.65	+ 1 15.53		

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant, $\Lambda$	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $\alpha_1$	Arithmetic Mean $\alpha$
										Collimation	Level	Pen Equation Q	Approximate Clock Rate					
JALPAIGURI AND CALCUTTA	JALPAIGURI (Latitude $26^{\circ} 31'$ )	1882 Dec. 21	I.P.W.	E	1400 Gr. 72	L	5	+0.1661	$\begin{smallmatrix} h & m & s \\ 3 & 39 & 24.72 \end{smallmatrix}$	-0.12	-0.06	+1.46		$\begin{smallmatrix} s \\ 26.00 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 3 & 39 & 26.86 \end{smallmatrix}$	+0.0.86	-0.5	+1.5
				"	372 "	U	6	-0.2321	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 32.28 \end{smallmatrix}$	+0.19	+0.14	+1.46	+0.04	$\begin{smallmatrix} s \\ 34.11 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 35.15 \end{smallmatrix}$	+0.1.04		
				W	$\delta$ Ursæ Minoris	L	2	+0.3500	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 30.60 \end{smallmatrix}$	-0.46	-0.25	+1.46		$\begin{smallmatrix} s \\ 31.35 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.26 \end{smallmatrix}$	+1.5.91	+3.5	
				"	51 Cephei	U	2	-0.4051	$\begin{smallmatrix} h & m & s \\ 6 & 44 & 47.05 \end{smallmatrix}$	+0.56	+0.39	-1.46	+0.06	$\begin{smallmatrix} s \\ 46.60 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 49.87 \end{smallmatrix}$	+1.3.27		
		" 26	I.P.E.	E	372 Gr. 72	U	2	-0.2321	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 19.30 \end{smallmatrix}$	+0.19	+0.25	+1.44		$\begin{smallmatrix} s \\ 21.18 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 34.70 \end{smallmatrix}$	+0.13.52	-1.3	-0.3
				"	1556 "	L	8	+0.1575	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 36.43 \end{smallmatrix}$	-0.12	-0.10	-1.44	+0.12	$\begin{smallmatrix} s \\ 34.80 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 47.91 \end{smallmatrix}$	+0.13.02		
				W	$\delta$ Ursæ Minoris	L	3	+0.3500	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 20.97 \end{smallmatrix}$	-0.53	-0.27	+1.44		$\begin{smallmatrix} s \\ 21.61 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 36.78 \end{smallmatrix}$	+1.15.17	+0.7	
				"	51 Cephei	U	3	-0.4051	$\begin{smallmatrix} h & m & s \\ 6 & 44 & 36.60 \end{smallmatrix}$	+0.65	+0.41	-1.44	+0.06	$\begin{smallmatrix} s \\ 36.28 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 50.93 \end{smallmatrix}$	+1.14.65		
		" 27	I.P.W.	E	372 Gr. 72	U	7	-0.2321	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 16.23 \end{smallmatrix}$	-0.41	-0.14	+1.44		$\begin{smallmatrix} s \\ 17.12 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 34.62 \end{smallmatrix}$	+0.17.50	-4.2	-3.4
				"	1556 "	L	5	+0.1575	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 33.10 \end{smallmatrix}$	+0.25	+0.05	-1.44	+0.12	$\begin{smallmatrix} s \\ 32.08 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 47.95 \end{smallmatrix}$	+0.15.87		
				W	$\delta$ Ursæ Minoris	L	3	+0.3500	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 18.33 \end{smallmatrix}$	+0.57	+0.15	+1.44		$\begin{smallmatrix} s \\ 20.40 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 36.72 \end{smallmatrix}$	+1.16.23	-2.6	
				"	51 Cephei	U	3	-0.4051	$\begin{smallmatrix} h & m & s \\ 6 & 44 & 35.23 \end{smallmatrix}$	-0.70	-0.23	-1.44	+0.06	$\begin{smallmatrix} s \\ 32.92 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.11 \end{smallmatrix}$	+1.18.19		
		" 28	I.P.E.	E	372 Gr. 72	U	5	-0.2321	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 17.74 \end{smallmatrix}$	+0.27	+0.04	+1.45		$\begin{smallmatrix} s \\ 19.50 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 34.53 \end{smallmatrix}$	+0.15.03	+17.8	+17.1
				"	1556 "	L	8	+0.1575	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 27.53 \end{smallmatrix}$	-0.17	-0.02	-1.45	+0.12	$\begin{smallmatrix} s \\ 26.01 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 47.99 \end{smallmatrix}$	+0.21.98		
				W	$\delta$ Ursæ Minoris	L	3	+0.3500	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 10.27 \end{smallmatrix}$	-0.38	-0.04	+1.45		$\begin{smallmatrix} s \\ 11.30 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 36.69 \end{smallmatrix}$	+1.25.39	+16.3	
				"	51 Cephei	U	3	-0.4051	$\begin{smallmatrix} h & m & s \\ 6 & 44 & 39.00 \end{smallmatrix}$	+0.46	+0.07	-1.45	+0.06	$\begin{smallmatrix} s \\ 38.14 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.25 \end{smallmatrix}$	+1.13.11		
		" 29	I.P.W.	E	1556 Gr. 72	L	5	+0.1575	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 27.98 \end{smallmatrix}$	+0.30	+0.02	-1.45	+2.86 -11.44	$\begin{smallmatrix} s \\ 29.71 \\ 15.41 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 48.03 \end{smallmatrix}$		-6.5* -11.2*	-8.9
				"	372 Gr. 72	U	5	-0.2321	$\begin{smallmatrix} h & m & s \\ 3 & 59 & 58.88 \end{smallmatrix}$	-0.30	-0.13	+1.44		$\begin{smallmatrix} s \\ 59.89 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 34.09 \end{smallmatrix}$	+0.34.20	+1.0	
				"	1556 "	L	7	+0.1575	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 14.70 \end{smallmatrix}$	+0.18	+0.05	-1.44	+0.12	$\begin{smallmatrix} s \\ 13.61 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 48.19 \end{smallmatrix}$	+0.34.58	+0.9	
				W	$\delta$ Ursæ Minoris	L	4	+0.3500	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 3.35 \end{smallmatrix}$	+0.42	+0.13	+1.44		$\begin{smallmatrix} s \\ 5.34 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 36.76 \end{smallmatrix}$	+1.31.42	+0.7	
		1883 Jan. 2	I.P.E.	"	51 Cephei	U	3	-0.4051	$\begin{smallmatrix} h & m & s \\ 6 & 44 & 22.80 \end{smallmatrix}$	-0.51	-0.20	-1.44	+0.06	$\begin{smallmatrix} s \\ 20.71 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.59 \end{smallmatrix}$	+1.30.88		
JALPAIGURI AND CALCUTTA	CALCUTTA (Latitude $22^{\circ} 33'$ )	1882 Dec. 21	I.P.W.	W	372 Gr. 72	U	3	-0.2413	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 54.50 \end{smallmatrix}$	+0.52	+0.15	+1.67		$\begin{smallmatrix} s \\ 56.84 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 35.16 \end{smallmatrix}$	-0.21.68	-16.7	-15.0
				"	$\delta$ Ursæ Minoris	L	3	+0.3596	$\begin{smallmatrix} h & m & s \\ 6 & 10 & 7.97 \end{smallmatrix}$	-0.72	-0.15	+1.67	+0.21	$\begin{smallmatrix} s \\ 8.98 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.26 \end{smallmatrix}$	-0.31.72		
				"	$\delta$ Ursæ Minoris	L	3	+0.3596	$\begin{smallmatrix} h & m & s \\ 6 & 10 & 7.97 \end{smallmatrix}$	-0.72	-0.15	+1.67		$\begin{smallmatrix} s \\ 8.77 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.26 \end{smallmatrix}$	-0.31.51	-13.2	
				"	51 Cephei	U	3	-0.4198	$\begin{smallmatrix} h & m & s \\ 6 & 46 & 11.57 \end{smallmatrix}$	+0.88	+0.24	-1.67	+0.06	$\begin{smallmatrix} s \\ 11.08 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 49.87 \end{smallmatrix}$	-0.21.21		
		" 26	I.P.E.	W	372 Gr. 72	U	4	-0.2413	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 52.88 \end{smallmatrix}$	+0.05	+0.07	+1.66		$\begin{smallmatrix} s \\ 54.66 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 0 & 34.71 \end{smallmatrix}$	-0.19.95	+18.2	+20.8
				"	1556 "	L	5	+0.1609	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 58.88 \end{smallmatrix}$	-0.03	-0.03	+1.66	+0.09	$\begin{smallmatrix} s \\ 60.57 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 4 & 57 & 47.93 \end{smallmatrix}$	-0.12.64		
				"	$\delta$ Ursæ Minoris	L	3	+0.3596	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 43.53 \end{smallmatrix}$	-0.08	-0.07	+1.66		$\begin{smallmatrix} s \\ 45.04 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 36.78 \end{smallmatrix}$	-0.8.26	+23.3	
				"	51 Cephei	U	3	-0.4198	$\begin{smallmatrix} h & m & s \\ 6 & 46 & 18.77 \end{smallmatrix}$	+0.09	+0.12	-1.66	+0.06	$\begin{smallmatrix} s \\ 17.38 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 50.93 \end{smallmatrix}$	-0.26.45		

\* These values have been obtained by correcting the "Observed Time of Transit" for "Clock Rate" and change in Right Ascension (which corrections are in column 14) and then deducing the change of Azimuth as compared with the values (1) on the 28th December 1882 (2) on the 2nd January 1883.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

JALPAIGURI AND CALCUTTA																		
Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Devia- tion Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
										Colli- mation	Level	Pen Equa- tion Q	Approximate Clock Rate					
		1882		W	372 Gr. 72	U	3	-0.2413	h m s 4 0 49.63	s +1.06	s +0.64	s +1.67	s 53.00	h m s 4 0 34.63	- m s - 0 18.37	d +21.2	d +19.9	
		Dec. 27	I.P.W.	"	8 Ursæ Minoris	L	4	+0.3596	6 9 42.60	-1.48	-0.64	+1.67	+0.21	42.36	6 9 36.72	- 0 5.64		
	"			8 Ursæ Minoris	L	4	+0.3596	6 9 42.60	-1.48	-0.64	+1.67		42.15	6 9 36.72	- 0 5.43	+18.6		
	"			51 Cephei	U	3	-0.4198	6 46 9.80	+1.81	+1.01	-1.67	+0.06	11.01	6 45 51.11	- 0 19.90			
	W			372 Gr. 72	U	4	-0.2413	4 0 45.33	+0.43	+0.81	+1.67		48.24	4 0 34.54	- 0 13.70	+10.2		
	"	28	I.P.E.	"	1556 "	L	5	+0.1609	4 57 56.40	-0.27	-0.28	+1.67	+0.09	57.61	4 57 48.01	- 0 9.60	+11.1	
	"			8 Ursæ Minoris	L	4	+0.3596	6 9 43.40	-0.61	-0.81	+1.67		43.65	6 9 36.69	- 0 6.96	+11.9		
	"			51 Cephei	U	4	-0.4198	6 46 7.08	+0.74	+1.29	-1.67	+0.06	7.50	6 45 51.25	- 0 16.25			
	W	29	I.P.W.		372 Gr. 72	U	4	-0.2413	4 0 45.45	-1.11	+0.65	+1.67		46.66	4 0 34.45	- 0 12.21	+ 9.7	
	"				1556 "	L	4	+0.1609	4 57 54.13	+0.68	-0.22	+1.67	+0.09	56.35	4 57 48.05	- 0 8.30	+12.7	
	"				8 Ursæ Minoris	L	3	+0.3596	6 9 37.10	+1.56	-0.70	+1.67		39.63	6 9 36.68	- 0 2.95	+15.7	
	"				51 Cephei	U	3	-0.4198	6 46 8.93	-1.90	+1.11	-1.67	+0.06	6.53	6 45 51.37	- 0 15.16		
	W	1883 Jan. 2	I.P.E.		372 Gr. 72	U	4	-0.2413	4 0 32.53	-0.62	-0.51	+1.67		33.07	4 0 34.10	+ 0 1.03	+ 0.1	
	"				1556 "	L	5	+0.1609	4 57 44.80	+0.38	+0.17	+1.67	+0.09	47.11	4 57 48.21	+ 0 1.10	+ 3.6	
	"				8 Ursæ Minoris	L	4	+0.3596	6 9 31.30	+0.88	+0.51	+1.67		34.36	6 9 36.76	+ 0 2.40	+ 7.0	
	"				51 Cephei	U	4	-0.4198	6 45 58.13	-1.07	-0.81	-1.67	+0.06	54.64	6 45 51.59	- 0 3.05		
CHITTAGONG AND JALPAIGURI																		
		1883 Jan. 12	I.P.E.		E	8 Ursæ Minoris	L	3	+0.3598	6 9 5.27	+0.65	-0.17	+1.73		7.48	6 9 37.05	+ 0 29.57	-15.1
	"				51 Cephei	U	2	-0.4208	6 45 13.05	-0.79	+0.28	-1.73	+0.04	10.85	6 45 52.18	+ 0 41.33	-11.5	
	"				1958 Gr. 72	L	4	+0.1585	8 50 16.80	+0.28	-0.06	+1.73		18.75	8 50 51.05	+ 0 32.30	- 7.8	
	"				908 "	U	4	-0.1365	9 19 50.00	-0.27	+0.11	+1.73	+0.03	51.60	9 20 26.19	+ 0 34.59		
	"	13	I.P.W.		E	8 Ursæ Minoris	L	3	+0.3598	6 9 0.83	+0.19	+0.36	+1.72		3.10	6 9 37.16	+ 0 34.06	- 5.2
	"				51 Cephei	U	4	-0.4208	6 45 16.48	-0.23	-0.57	-1.72	+0.04	14.00	6 45 52.11	+ 0 38.11	- 5.8	
	W				1958 Gr. 72	L	5	+0.1585	8 37 12.24	+0.08	+0.12	0.00		12.44	8 50 50.99	+13 38.55	- 6.4	
	"				908 "	U	5	-0.1365	9 6 46.06	-0.08	-0.23	0.00	+0.09	45.84	9 20 26.28	+13 40.44		
	"	14	I.P.E.		E	8 Ursæ Minoris	L	4	+0.3598	6 8 58.25	+0.19	-0.21	0.00		58.23	6 9 37.29	+ 0 39.06	+ 2.1
	"				51 Cephei	U	4	-0.4208	6 45 14.48	-0.23	+0.34	0.00	+0.04	14.63	6 45 52.03	+ 0 37.40	+ 5.6	
	W				1958 Gr. 72	L	6	+0.1585	8 37 6.30	+0.08	-0.07	0.00		6.31	8 50 50.93	+13 44.62	+ 9.1	
	"				908 "	U	4	-0.1365	9 6 44.28	-0.08	+0.14	0.00	+0.09	44.43	9 20 26.38	+13 41.95		
	"	15	I.P.W.		E	8 Ursæ Minoris	L	4	+0.3598	6 8 47.43	-0.53	+0.30	+1.67		48.87	6 9 37.42	+ 0 48.55	+22.2
	"				51 Cephei	U	4	-0.4208	6 45 22.15	+0.65	-0.47	-1.67	+0.04	20.70	6 45 51.95	+ 0 31.25	+24.6	
	W				1958 Gr. 72	L	5	+0.1585	8 36 60.88	-0.23	+0.10	-1.67		59.08	8 50 50.88	+13 51.80	+27.0	
	"				908 "	U	5	-0.1365	9 6 44.18	+0.22	-0.19	-1.67	+0.09	42.63	9 20 26.47	+13 43.84		

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant $\Delta$	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $\alpha_1$	Arithmetic Mean $\alpha$	
										Collimation	Level	Pen Equation $Q$	Approximate Clock Rate						
CHITTAGONG (Latitude $22^{\circ} 20'$ )	1883	Jan. 17	I.P.E.	E	$\delta$ Ursæ Minoris	L	3	+0°3598	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 51.30 \end{smallmatrix}$	+0°68	+0°04	+1°70	$s$	$\begin{smallmatrix} s \\ 53.72 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.67 \end{smallmatrix}$	+0°43'95	+5°2	+6°2	
				"	51 Cephei	U	3	-0°4208	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 14.50 \end{smallmatrix}$	-0°84	-0°06	-1°70	+0°04	$\begin{smallmatrix} s \\ 11.94 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.81 \end{smallmatrix}$	+0°39'87			
				W	1958 Gr. 72	L	4	+0°1585	$\begin{smallmatrix} h & m & s \\ 8 & 36 & 54.88 \end{smallmatrix}$	+0°29	+0°01	-1°70		$\begin{smallmatrix} s \\ 53.48 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.76 \end{smallmatrix}$	+13°57'28	+7°2		
				"	908 "	U	5	-0°1365	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 33.42 \end{smallmatrix}$	-0°29	-0°02	-1°70	+0°09	$\begin{smallmatrix} s \\ 31.50 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.65 \end{smallmatrix}$	+13°55'15			
	" 18	I.P.W.	E	$\delta$ Ursæ Minoris	L	3	+0°3598	$\begin{smallmatrix} h & m & s \\ 6 & 8 & 50.60 \end{smallmatrix}$	+0°27	-0°06	+1°68		$\begin{smallmatrix} s \\ 52.49 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.77 \end{smallmatrix}$	+0°45'28	+0°8	+0°8		
			"	51 Cephei	U	4	-0°4208	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 8.98 \end{smallmatrix}$	-0°33	+0°10	-1°68	+0°04	$\begin{smallmatrix} s \\ 7.11 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.75 \end{smallmatrix}$	+0°44'64				
			W	1958 Gr. 72	L	5	+0°1585	$\begin{smallmatrix} h & m & s \\ 8 & 36 & 52.06 \end{smallmatrix}$	+0°11	-0°02	-1°68		$\begin{smallmatrix} s \\ 50.47 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.70 \end{smallmatrix}$	+13°60'23	+0°8			
			"	908 "	U	5	-0°1365	$\begin{smallmatrix} h & m & s \\ 9 & 6 & 28.42 \end{smallmatrix}$	-0°11	+0°04	-1°68	+0°09	$\begin{smallmatrix} s \\ 26.76 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.74 \end{smallmatrix}$	+13°59'98				
	JALPAIGURI (Latitude $26^{\circ} 31'$ )	1883	Jan. 12	I.P.E.	E	$\delta$ Ursæ Minoris	L	3	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 23.67 \end{smallmatrix}$	+0°23	+0°06	+1°45		$\begin{smallmatrix} s \\ 25.41 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.05 \end{smallmatrix}$	-11°48'36	+3°1	+6°6
					"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 44.63 \end{smallmatrix}$	-0°28	-0°09	-1°45	+0°04	$\begin{smallmatrix} s \\ 42.85 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 52.18 \end{smallmatrix}$	-11°50'67		
					W	1958 Gr. 72	L	6	+0°1551	$\begin{smallmatrix} h & m & s \\ 8 & 49 & 40.12 \end{smallmatrix}$	+0°05	+0°04	-1°45		$\begin{smallmatrix} s \\ 38.76 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 51.05 \end{smallmatrix}$	+1°12'29	+10°0	
					"	908 "	U	8	-0°1303	$\begin{smallmatrix} h & m & s \\ 9 & 19 & 18.24 \end{smallmatrix}$	-0°05	-0°07	-1°45	+0°09	$\begin{smallmatrix} s \\ 16.76 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.19 \end{smallmatrix}$	+1°9'43		
" 13		I.P.W.	E	$\delta$ Ursæ Minoris	L	6	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 24.05 \end{smallmatrix}$	+0°84	+0°46	+1°50		$\begin{smallmatrix} s \\ 26.85 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.16 \end{smallmatrix}$	-11°49'69	-2°8	-1°2		
			"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 42.87 \end{smallmatrix}$	-1°02	-0°70	-1°50	+0°04	$\begin{smallmatrix} s \\ 39.69 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 52.11 \end{smallmatrix}$	-11°47'58				
			W	1958 Gr. 72	L	7	+0°1551	$\begin{smallmatrix} h & m & s \\ 8 & 49 & 36.49 \end{smallmatrix}$	+0°64	+0°27	-1°50		$\begin{smallmatrix} s \\ 35.90 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.99 \end{smallmatrix}$	+1°15'09	+0°4			
			"	908 "	U	7	-0°1303	$\begin{smallmatrix} h & m & s \\ 9 & 19 & 13.80 \end{smallmatrix}$	-0°62	-0°47	-1°50	+0°09	$\begin{smallmatrix} s \\ 11.30 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.28 \end{smallmatrix}$	+1°14'98				
" 14		I.P.E.	E	$\delta$ Ursæ Minoris	L	5	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 26.24 \end{smallmatrix}$	+0°27	+0°03	+1°52		$\begin{smallmatrix} s \\ 28.06 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.29 \end{smallmatrix}$	-11°50'77	-9°2	-3°0		
			"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 37.67 \end{smallmatrix}$	-0°32	-0°05	-1°52	+0°04	$\begin{smallmatrix} s \\ 35.82 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 52.03 \end{smallmatrix}$	-11°43'79				
			W	1958 Gr. 72	L	5	+0°1551	$\begin{smallmatrix} h & m & s \\ 8 & 49 & 33.40 \end{smallmatrix}$	+0°73	+0°03	-1°52		$\begin{smallmatrix} s \\ 32.04 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.93 \end{smallmatrix}$	+1°18'89	+3°3			
			"	908 "	U	8	-0°1303	$\begin{smallmatrix} h & m & s \\ 9 & 19 & 10.03 \end{smallmatrix}$	-0°13	-0°05	-1°52	+0°09	$\begin{smallmatrix} s \\ 8.42 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.38 \end{smallmatrix}$	+1°17'96				
" 15	I.P.W.	E	$\delta$ Ursæ Minoris	L	5	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 22.08 \end{smallmatrix}$	+0°19	+0°10	+1°54		$\begin{smallmatrix} s \\ 23.91 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.42 \end{smallmatrix}$	-11°46'49	-3°3	+2°1			
		"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 37.87 \end{smallmatrix}$	-0°23	-0°16	-1°54	+0°04	$\begin{smallmatrix} s \\ 35.98 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.95 \end{smallmatrix}$	-11°44'03					
		W	1958 Gr. 72	L	6	+0°1551	$\begin{smallmatrix} h & m & s \\ 8 & 49 & 28.12 \end{smallmatrix}$	+0°08	+0°04	-1°54		$\begin{smallmatrix} s \\ 26.70 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.88 \end{smallmatrix}$	+1°24'18	+7°4				
		"	908 "	U	5	-0°1303	$\begin{smallmatrix} h & m & s \\ 9 & 19 & 5.98 \end{smallmatrix}$	-0°08	-0°05	-1°54	+0°09	$\begin{smallmatrix} s \\ 4.40 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.47 \end{smallmatrix}$	+1°22'07					
" 17	I.P.E.	E	$\delta$ Ursæ Minoris	L	5	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 17.42 \end{smallmatrix}$	-0°04	-0°27	+1°52		$\begin{smallmatrix} s \\ 18.63 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.67 \end{smallmatrix}$	-11°40'96	+3°5	+3°5			
		"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 36.43 \end{smallmatrix}$	+0°05	+0°41	-1°52	+0°04	$\begin{smallmatrix} s \\ 35.41 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.81 \end{smallmatrix}$	-11°43'60					
		E	$\delta$ Ursæ Minoris	L	4	+0°3499	$\begin{smallmatrix} h & m & s \\ 6 & 21 & 16.63 \end{smallmatrix}$	+0°30	+0°10	+1°52		$\begin{smallmatrix} s \\ 18.55 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 9 & 37.77 \end{smallmatrix}$	-11°40'78	-2°1		+3°7		
		"	51 Cephei	U	3	-0°4053	$\begin{smallmatrix} h & m & s \\ 6 & 57 & 32.93 \end{smallmatrix}$	-0°37	-0°16	-1°52	+0°04	$\begin{smallmatrix} s \\ 30.92 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 6 & 45 & 51.75 \end{smallmatrix}$	-11°39'17					
" 18	I.P.W.	W	1958 Gr. 72	L	5	+0°1551	$\begin{smallmatrix} h & m & s \\ 8 & 49 & 14.68 \end{smallmatrix}$	+0°20	+0°01	-1°52		$\begin{smallmatrix} s \\ 13.37 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50.70 \end{smallmatrix}$	+1°37'33	+9°5				
		"	908 "	U	6	-0°1303	$\begin{smallmatrix} h & m & s \\ 9 & 18 & 53.77 \end{smallmatrix}$	-0°19	-0°02	-1°52	+0°09	$\begin{smallmatrix} s \\ 52.13 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 26.74 \end{smallmatrix}$	+1°34'61					

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

CHITTAGONG AND CALCUTTA																		
Arc	Station	CHITTAGONG (Latitude 22° 20')																
	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$	
								$h\ m\ s$	$s$	$s$	$s$	$s$	$h\ m\ s$	$m\ s$		$d$	$d$	
	1883			E 51 Cephei	U	4	-0.4209	6 45 57.88	-0.37	-0.43	+1.68		58.76	6 45 51.58	-0 7.18	+ 4.0		
	Jan. 23	I.P.W.		" $\lambda$ Ursæ Minoris	L	2	+1.1468	7 39 40.35	+0.98	+0.98	-1.68	+0.09	40.72	7 39 39.86	-0 0.86		+ 4.4	
				W 908 Gr. 72	U	4	-0.1365	9 6 38.43	-0.13	-0.18	-1.68		36.44	9 20 27.08	+13 51.28	+ 4.7		
				E 51 Cephei	U	4	-0.4209	6 45 59.15	-0.05	+0.28	+1.70		61.08	6 45 51.48	-0 9.60	+ 7.6		
	" 24	I.P.E.		" $\lambda$ Ursæ Minoris	L	3	+1.1468	7 39 39.67	+0.12	-0.63	-1.70	+0.09	37.55	7 39 39.83	+0 2.28		+ 8.2	
				W 1958 Gr. 72	L	5	+0.1585	8 36 56.98	+0.02	-0.06	+1.70		58.64	8 50 50.50	+13 51.86	+ 8.7		
				" 908 "	U	5	-0.1365	9 6 39.48	-0.02	+0.11	-1.70	-0.02	37.85	9 20 27.14	+13 49.29			
	" 25	I.P.W.		E 51 Cephei	U	4	-0.4209	6 45 52.65	0.00	+0.16	+1.71		54.52	6 45 51.35	-0 3.17	+ 8.4		
				" $\lambda$ Ursæ Minoris	L	2	+1.1468	7 39 31.85	0.00	-0.36	-1.71	+0.09	29.87	7 39 39.90	+0 10.03		+10.7	
				W 1958 Gr. 72	L	6	+0.1585	8 36 57.55	0.00	-0.03	+1.71		59.23	8 50 50.47	+13 51.24	+13.0		
				" 908 "	U	5	-0.1365	9 6 41.48	0.00	+0.06	-1.71	-0.02	39.81	9 20 27.21	+13 47.40			
	" 26	I.P.E.		E 51 Cephei	U	3	-0.4209	6 45 48.20	-0.84	-0.18	+1.71		48.89	6 45 51.19	+0 2.30	-10.9		
				" $\lambda$ Ursæ Minoris	L	2	+1.1468	7 39 53.85	+2.22	+0.40	-1.71	+0.09	54.85	7 39 40.03	-0 14.82		-10.3	
				W 1958 Gr. 72	L	6	+0.1585	8 37 1.73	+0.29	+0.04	+1.71		3.77	8 50 50.43	+13 46.66	- 9.7		
				" 908 "	U	5	-0.1365	9 6 39.84	-0.29	-0.07	-1.71	-0.02	37.75	9 20 27.28	+13 49.53			
	" 28	I.P.W.		E 51 Cephei	U	3	-0.4209	6 45 46.97	+0.05	-0.26	+1.72		48.48	6 45 50.82	+0 2.34	+11.6		
				" $\lambda$ Ursæ Minoris	L	3	+1.1468	7 39 21.17	-0.12	+0.58	-1.72	+0.09	20.00	7 39 40.48	+0 20.48		+11.9	
				W 1958 Gr. 72	L	5	+0.1585	8 37 0.96	-0.02	+0.05	+1.72		2.71	8 50 50.37	+13 47.66	+12.1		
				" 908 "	U	5	-0.1365	9 6 45.14	+0.02	-0.10	-1.72	-0.02	43.32	9 20 27.41	+13 44.09			
	" 29	I.P.E.		E 51 Cephei	U	4	-0.4209	6 45 41.03	-1.02	+0.06	+1.70		41.77	6 45 50.62	+0 8.85	- 4.2		
				" $\lambda$ Ursæ Minoris	L	2	+1.1468	7 39 37.50	+2.71	-0.13	-1.70	+0.09	38.47	7 39 40.75	+0 2.28		- 1.4	
				W 1958 Gr. 72	L	5	+0.1585	8 37 1.12	+0.36	-0.01	+1.70		3.17	8 50 50.34	+13 47.17	+ 1.5		
				" 908 "	U	5	-0.1365	9 6 42.80	-0.35	+0.02	-1.70	-0.02	40.75	9 20 27.48	+13 46.73			
	" 30	I.P.W.		E 51 Cephei	U	3	-0.4209	6 45 37.80	-0.84	-0.04	+1.69		38.61	6 45 50.42	+0 11.81	+ 3.1		
				" $\lambda$ Ursæ Minoris	L	2	+1.1468	7 39 23.65	+2.22	+0.09	-1.69	+0.09	24.36	7 39 41.04	+0 16.68		+ 2.3	
				W 1958 Gr. 72	L	5	+0.1585	8 37 1.74	+0.29	+0.01	+1.69		3.73	8 50 50.30	+13 46.57	+ 1.5		
				" 908 "	U	5	-0.1365	9 6 43.44	-0.29	-0.02	-1.69	-0.02	41.42	9 20 27.54	+13 46.12			
	1883			E 51 Cephei	U	3	-0.4202	6 59 51.00	-0.56	-0.72	+1.56		51.28	6 45 51.58	-13 59.70	- 3.6		
	Jan. 23	I.P.W.		" $\lambda$ Ursæ Minoris	L	1	+1.1451	7 53 43.60	+1.48	+1.62	-1.56	+0.09	45.23	7 39 39.86	-13 65.37		- 2.1	
				W 1958 Gr. 72	L	5	+0.1584	8 50 51.82	+0.30	+0.18	+1.56		53.86	8 50 50.53	-0 3.33	- 0.5		
				" 908 "	U	4	-0.1362	9 20 32.48	-0.29	-0.36	-1.56	-0.02	30.25	9 20 27.08	-0 3.17			
				E 51 Cephei	U	3	-0.4202	6 59 51.00	-0.56	-0.72	+1.56		51.28	6 45 51.58	-13 59.70			
				" $\lambda$ Ursæ Minoris	L	1	+1.1451	7 53 43.60	+1.48	+1.62	-1.56	+0.09	45.23	7 39 39.86	-13 65.37			
				W 1958 Gr. 72	L	5	+0.1584	8 50 51.82	+0.30	+0.18	+1.56		53.86	8 50 50.53	-0 3.33			
				" 908 "	U	4	-0.1362	9 20 32.48	-0.29	-0.36	-1.56	-0.02	30.25	9 20 27.08	-0 3.17			

\* True Clock correction deduced from the following day.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant $\Delta$	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
										Collimation	Level	Pen Equation $Q$	Approximate Clock Rate					
CHITTAGONG AND CALCUTTA	CALCUTTA (Latitude $22^{\circ} 33'$ )	1883 Jan. 24	I.P.E.	E	51 Cephei	U	4	-0.4202	$h\ m\ s$ 6 59 58.88	+0.74	+1.01	+1.57	$s$ 62.20	$h\ m\ s$ 6 45 51.48	-14 10.72		$d$	$d$
				"	$\lambda$ Ursæ Minoris	L	1	+1.1451	7 53 10.30	-1.97	-2.30	-1.57	+0.09	4.55	7 39 39.83	-13 24.72	+29.4	+29.7
				W	1958 Gr. 72	L	5	+0.1584	8 50 49.46	-0.46	-0.21	+1.57		50.36	8 50 50.50	+0 0.14	+30.0	
				"	908 "	U	5	-0.1362	9 20 36.58	+0.44	+0.41	-1.57	-0.02	35.84	9 20 27.14	-0 8.70		
		" 25	I.P.W.	E	51 Cephei	U	4	-0.4202	6 59 56.88	-0.46	+0.48	+1.56		58.46	6 45 51.35	-14 7.11	+25.3	+27.3
				"	$\lambda$ Ursæ Minoris	L	2	+1.1451	7 53 8.80	+1.23	-1.08	-1.56	+0.09	7.48	7 39 39.90	-13 27.58	+29.3	
				W	1958 Gr. 72	L	5	+0.1584	8 50 50.50	+0.18	-0.14	+1.56		52.10	8 50 50.47	-0 1.63		
				"	908 "	U	5	-0.1362	9 20 38.96	-0.17	+0.27	-1.56	-0.02	37.48	9 20 27.21	-0 10.27		
		" 26	I.P.E.	E	51 Cephei	U	4	-0.4202	6 59 57.68	-0.42	+2.03	+1.55		60.84	6 45 51.19	-14 9.65	+36.5	+36.6
				"	$\lambda$ Ursæ Minoris	L	3	+1.1451	7 52 57.50	+1.11	-4.60	-1.55	+0.09	52.55	7 39 40.03	-13 12.52		
				W	1958 Gr. 72	L	6	+0.1584	8 50 50.43	+0.26	-0.39	+1.55		51.85	8 50 50.43	-0 1.42	+36.7	
				"	908 "	U	8	-0.1362	9 20 40.58	-0.25	+0.75	-1.55	-0.02	39.51	9 20 27.28	-0 12.23		
		" 28	I.P.W.	E	51 Cephei	U	5	-0.4202	6 59 53.62	+0.79	+0.34	+1.57		56.32	6 45 50.82	-14 5.50	+37.6	+39.1
				"	$\lambda$ Ursæ Minoris	L	2	+1.1451	7 52 51.45	-2.09	-0.77	-1.57	+0.09	47.11	7 39 40.48	-13 6.63		
				W	1958 Gr. 72	L	6	+0.1584	8 50 51.60	-0.41	-0.09	+1.57		52.67	8 50 50.37	-0 2.30	+40.6	
				"	908 "	U	5	-0.1362	9 20 42.68	+0.40	+0.17	-1.57	-0.02	41.66	9 20 27.41	-0 14.25		
		" 29	I.P.E.	E	51 Cephei	U	4	-0.4202	6 59 41.68	+0.28	+0.40	+1.57		43.93	6 45 50.62	-13 53.31	+15.9	+17.6
				"	$\lambda$ Ursæ Minoris	L	3	+1.1451	7 53 12.33	-0.74	-0.90	-1.57	+0.09	9.21	7 39 40.75	-13 28.46		
				W	1958 Gr. 72	L	5	+0.1584	8 50 54.88	-0.15	-0.10	+1.57		56.20	8 50 50.34	-0 5.86	+19.3	
				"	908 "	U	6	-0.1362	9 20 40.28	+0.14	+0.19	-1.57	-0.02	39.02	9 20 27.48	-0 11.54		
		" 30	I.P.W.	E	51 Cephei	U	4	-0.4202	6 59 37.10	-0.32	-0.24	+1.55		38.09	6 45 50.42	-13 47.67	+8.8	+9.3
				"	$\lambda$ Ursæ Minoris	L	3	+1.1451	7 53 15.07	+0.86	+0.54	-1.55	+0.09	15.01	7 39 41.04	-13 33.97		
				W	1958 Gr. 72	L	7	+0.1584	8 50 55.53	+0.31	+0.05	+1.55		57.44	8 50 50.30	-0 7.14	+9.8	
				"	908 "	U	6	-0.1362	9 20 39.53	-0.30	-0.10	-1.55	-0.02	37.56	9 20 27.54	-0 10.02		
CALCUTTA AND FYZABAD	CALCUTTA (Latitude $22^{\circ} 33'$ )	1883 Feb. 8	I.P.E.	E	$\lambda$ Ursæ Minoris	L	2	+1.1433	7 38 43.30	-0.61	-1.53	+1.63		42.79	7 39 43.26	+0 60.47	+8.3	+10.4
				"	815 Gr. 72	U	3	-0.6410	8 20 10.70	+0.36	+1.11	+1.63	+0.02	13.82	8 20 59.53	+0 45.71		
				"	2209 "	L	3	+0.3654	11 26 50.03	-0.19	-0.43	-1.63		47.78	11 27 38.96	+0 51.18	+12.4	
				"	1138 "	U	3	-0.7096	12 13 58.30	+0.39	+1.08	-1.63	+0.02	58.16	12 14 35.93	+0 37.77		
		" 9	I.P.W.	E	$\lambda$ Ursæ Minoris	L	2	+1.1433	7 38 42.25	+3.44	-2.34	+1.64		44.99	7 39 43.73	+0 58.74	+6.0	+6.0
				"	815 Gr. 72	U	3	-0.6410	8 20 12.37	-2.02	-0.56	+1.64	+0.02	11.45	8 20 59.47	+0 48.02		



TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
										Collimation	Level	Pen Equation Q	Approximate Clock Rate					
CALCUTTA AND FYZABAD																		
CALCUTTA (Latitude $22^{\circ} 33'$ )	Feb. 10	1883	I.P.E.	E	$\lambda$ Ursæ Minoris	L	2	+1'1433	7 38 45'75	-0'86	+2'79	+1'63		49'31	7 39 44'28	+0 54'97	+2'8	+2'8
				"	815 Gr. 72	U	5	-0'6410	8 20 9'32	+0'50	-2'03	+1'63	+0'02	9'44	8 20 59'41	+0 49'97		
				"	2209 "	L	3	+0'3654	11 26 44'83	+3'60	+0'79	-1'63		47'59	11 27 38'58	+0 50'99	+2'8	
				"	1138 "	U	2	-0'7096	12 13 60'00	-7'24	-1'98	-1'63	+0'02	49'17	12 14 37'03	+0 47'86		
		" 11	I.P.W.	E	$\alpha$ Hydræ	U	10	+0'0116	9 21 0'83	-0'09	-0'10	+1'62		2'26	9 21 52'71	+0 50'45	+8'4	
				"	$\theta$ Ursæ Majoris	U	13	-0'0182	9 24 13'18	-0'15	-0'16	+1'62	0'00	14'49	9 25 4'69	+0 50'20		
				"	2209 Gr. 72	L	4	+0'3654	11 26 46'83	+1'59	+0'62	-1'62		47'42	11 27 38'39	+0 50'97	+4'3	
				"	1138 "	U	3	-0'7096	12 13 57'63	-3'19	-1'56	-1'62	+0'02	51'28	12 14 37'58	+0 46'30		
	" 13	I.P.E.		E	$\lambda$ Ursæ Minoris	L	2	+1'1433	7 38 42'55	-1'84	+2'34	+1'64		44'69	7 39 46'08	+0 61'39	+6'3	+8'2
				"	815 Gr. 72	U	5	-0'6410	8 20 8'04	+1'08	-1'70	+1'64	+0'02	9'08	8 20 59'23	+0 50'15		
				"	2209 "	L	4	+0'3654	11 26 44'83	-0'58	+0'66	-1'64		43'27	11 27 38'01	+0 54'74	+10'1	
				"	1138 "	U	3	-0'7096	12 13 56'97	+1'17	-1'66	-1'64	+0'02	54'86	12 14 38'68	+0 43'82		
	" 14	I.P.W.		E	$\lambda$ Ursæ Minoris	L	2	+1'1433	7 38 52'90	+5'53	+1'44	+1'63		61'50	7 39 46'63	+0 45'13	-6'1	-9'3
				"	815 Gr. 72	U	5	-0'6410	8 20 5'72	-3'24	-1'05	+1'63	+0'02	3'08	8 20 59'17	+0 56'09		
				"	2209 "	L	4	+0'3654	11 26 50'70	+1'74	+0'41	-1'63		51'22	11 27 37'82	+0 46'60	-12'4	
				"	1138 "	U	3	-0'7096	12 13 45'47	-3'50	-1'02	-1'63	+0'02	39'34	12 14 39'23	+0 59'89		
FYZABAD (Latitude $26^{\circ} 47'$ )	Feb. 8	1883	I.P.E.	W	$\lambda$ Ursæ Minoris	L	2	+1'1070	7 39 42'05	+0'61	+1'22	+1'67		45'55	7 39 43'26	-0 2'29	+0'3	-0'9
				"	815 Gr. 72	U	5	-0'6151	8 21 1'72	-0'36	-0'86	+1'67	+0'11	2'28	8 20 59'53	-0 2'75		
				"	2209 "	L	4	+0'3551	11 27 44'95	+0'19	+0'35	-1'67		43'82	11 27 38'96	-0 4'86	-2'0	
				"	1138 "	U	2	-0'6841	12 14 41'60	-0'39	-0'85	-1'67	+0'12	38'81	12 14 35'93	-0 2'88		
		" 9	I.P.W.	W	$\lambda$ Ursæ Minoris	L	3	+1'1070	7 39 35'83	+1'60	+2'40	+1'66		41'49	7 39 43'73	+0 2'24	+5'4	
				"	815 Gr. 72	U	8	-0'6151	8 21 7'31	-0'94	-1'68	+1'66	+0'11	6'46	8 20 59'47	-0 6'99		
				"	815 "	U	8	-0'6151	8 21 7'31	-0'94	-1'68	+1'66		6'35	8 20 59'47	-0 6'88	+0'1	
				"	2209 "	L	4	+0'3551	11 27 45'50	+0'50	+0'69	-1'66	+0'49	45'52	11 27 38'77	-0 6'75		
	" 10	I.P.E.		W	$\lambda$ Ursæ Minoris	L	3	+1'1070	7 39 43'17	+0'74	+1'87	+1'67		47'45	7 39 44'28	-0 3'17	+5'0	+3'7
				"	815 Gr. 72	U	5	-0'6151	8 21 11'18	-0'43	-1'31	+1'67	+0'11	11'22	8 20 59'41	-0 11'81		
				"	2209 "	L	4	+0'3551	11 27 50'32	+0'23	+0'54	-1'67		49'42	11 27 38'58	-0 10'84	+2'3	
				"	1138 "	U	2	-0'6841	12 14 53'70	-0'47	-1'30	-1'67	+0'12	50'38	12 14 37'03	-0 13'35		
	" 11	I.P.W.		W	$\lambda$ Ursæ Minoris	L	2	+1'1070	7 39 52'80	+1'35	+2'56	+1'66		58'37	7 39 44'89	-0 13'48	-0'2	+1'2
				"	815 Gr. 72	U	2	-0'6151	8 21 13'25	-0'79	-1'80	+1'66	+0'11	12'43	8 20 59'35	-0 13'08		
				"	2209 "	L	4	+0'3551	11 27 53'80	+0'43	+0'74	-1'66		53'31	11 27 38'39	-0 14'92		
				"	1138 "	U	3	-0'6841	12 14 59'50	-0'86	-1'78	-1'66	+0'12	55'32	12 14 37'58	-0 17'74	+2'6	

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant $\Lambda$	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
										Collimation	Level	Pen Equation $Q$	Approximate Clock Rate					
CALCUTTA AND FYZABAD	FYZABAD (Latitude $26^{\circ} 47'$ )	1883 Feb. 13	I.P.E.	W	$\lambda$ Ursæ Minoris	L	2	+1'1070	$\begin{smallmatrix} h & m & s \\ 7 & 40 & 3 \cdot 60 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +1'35 & +0'74 \end{smallmatrix}$	+1'66	$\begin{smallmatrix} s \\ 7 \cdot 35 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 7 & 39 & 46 \cdot 08 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 21 \cdot 27 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +0 \cdot 4 \end{smallmatrix}$	-1'4		
				"	815 Gr. 72	U	5	-0'6151	$\begin{smallmatrix} h & m & s \\ 8 & 21 & 20 \cdot 66 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'79 & -0'52 \end{smallmatrix}$	+1'66	+0'11	$\begin{smallmatrix} s \\ 21 \cdot 12 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 20 & 59 \cdot 23 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 21 \cdot 89 \end{smallmatrix}$			
				"	2209 "	L	4	+0'3551	$\begin{smallmatrix} h & m & s \\ 11 & 28 & 2 \cdot 35 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'43 & +0'22 \end{smallmatrix}$	-1'66	$\begin{smallmatrix} s \\ 1 \cdot 34 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 38 \cdot 01 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 23 \cdot 33 \end{smallmatrix}$				
				"	1138 "	U	2	-0'6841	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 61 \cdot 70 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'86 & -0'52 \end{smallmatrix}$	-1'66	+0'12	$\begin{smallmatrix} s \\ 58 \cdot 78 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 38 \cdot 68 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 20 \cdot 10 \end{smallmatrix}$			
		W	$\lambda$ Ursæ Minoris	L	2	+1'1070	$\begin{smallmatrix} h & m & s \\ 7 & 40 & 0 \cdot 95 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +2'46 & -2'77 \end{smallmatrix}$	+1'67	$\begin{smallmatrix} s \\ 2 \cdot 31 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 7 & 39 & 46 \cdot 63 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 15 \cdot 68 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +6 \cdot 4 \end{smallmatrix}$					
		"	815 Gr. 72	U	5	-0'6151	$\begin{smallmatrix} h & m & s \\ 8 & 21 & 23 \cdot 58 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'44 & +1'94 \end{smallmatrix}$	+1'67	+0'11	$\begin{smallmatrix} s \\ 25 \cdot 86 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 20 & 59 \cdot 17 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 26 \cdot 69 \end{smallmatrix}$					
		"	2209 "	L	4	+0'3551	$\begin{smallmatrix} h & m & s \\ 11 & 28 & 3 \cdot 78 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'77 & -0'80 \end{smallmatrix}$	-1'67	$\begin{smallmatrix} s \\ 2 \cdot 08 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 37 \cdot 82 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 24 \cdot 26 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +4 \cdot 7 \end{smallmatrix}$					
		"	1138 "	U	3	-0'6841	$\begin{smallmatrix} h & m & s \\ 12 & 15 & 9 \cdot 67 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'56 & +1'92 \end{smallmatrix}$	-1'67	+0'12	$\begin{smallmatrix} s \\ 8 \cdot 48 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 39 \cdot 23 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 29 \cdot 25 \end{smallmatrix}$					
	CALCUTTA AND JUBBULPORE	CALCUTTA (Latitude $22^{\circ} 33'$ )	1883 Feb. 22	I.P.W.	E	1958 Gr. 72	L	5	+0'1584	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 49 \cdot 02 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'44 & +0'04 \end{smallmatrix}$	+1'63	$\begin{smallmatrix} s \\ 51 \cdot 13 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50 \cdot 78 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 0 \cdot 35 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +23 \cdot 2 \end{smallmatrix}$	+22'8	
					"	1138 "	U	4	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 15 & 4 \cdot 33 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -2'37 & -0'29 \end{smallmatrix}$	+1'63	+0'16	$\begin{smallmatrix} s \\ 3 \cdot 46 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 42 \cdot 97 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 20 \cdot 49 \end{smallmatrix}$		
					"	2209 "	L	4	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 30 \cdot 13 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +1'04 & +0'11 \end{smallmatrix}$	+1'63	$\begin{smallmatrix} s \\ 32 \cdot 91 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 36 \cdot 63 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 3 \cdot 72 \end{smallmatrix}$			
					"	1138 "	U	4	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 15 & 4 \cdot 33 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -2'37 & -0'29 \end{smallmatrix}$	+1'63	+0'04	$\begin{smallmatrix} s \\ 3 \cdot 34 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 42 \cdot 97 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 20 \cdot 37 \end{smallmatrix}$		
" 23			I.P.E.	E	1958 Gr. 72	L	5	+0'1584	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 49 \cdot 06 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'33 & +0'12 \end{smallmatrix}$	+1'63	$\begin{smallmatrix} s \\ 50 \cdot 48 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50 \cdot 82 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 0 \cdot 34 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +13 \cdot 6 \end{smallmatrix}$	+10'1		
				"	908 "	U	4	-0'1362	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 32 \cdot 95 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'32 & -0'23 \end{smallmatrix}$	-1'63	+0'02	$\begin{smallmatrix} s \\ 31 \cdot 43 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 27 \cdot 75 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 3 \cdot 68 \end{smallmatrix}$			
				"	2209 "	L	4	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 37 \cdot 80 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'77 & +0'37 \end{smallmatrix}$	-1'63	$\begin{smallmatrix} s \\ 35 \cdot 77 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 36 \cdot 51 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 0 \cdot 74 \end{smallmatrix}$				
				"	1138 "	U	4	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 50 \cdot 55 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +1'56 & -0'93 \end{smallmatrix}$	-1'63	+0'04	$\begin{smallmatrix} s \\ 49 \cdot 59 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 43 \cdot 32 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 6 \cdot 27 \end{smallmatrix}$			
" 24			I.P.W.	E	1958 Gr. 72	L	4	+0'1584	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 47 \cdot 08 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'62 & +0'21 \end{smallmatrix}$	+1'64	$\begin{smallmatrix} s \\ 49 \cdot 55 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 50 \cdot 89 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 1 \cdot 34 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +19 \cdot 4 \end{smallmatrix}$	+19'1		
				"	908 "	U	5	-0'1362	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 34 \cdot 72 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'60 & -0'41 \end{smallmatrix}$	-1'64	+0'02	$\begin{smallmatrix} s \\ 32 \cdot 09 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 27 \cdot 71 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 4 \cdot 38 \end{smallmatrix}$			
				"	2209 "	L	4	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 31 \cdot 40 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +1'47 & +0'65 \end{smallmatrix}$	-1'64	$\begin{smallmatrix} s \\ 31 \cdot 88 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 36 \cdot 42 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 4 \cdot 54 \end{smallmatrix}$				
				"	1138 "	U	3	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 65 \cdot 43 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -2'96 & -1'63 \end{smallmatrix}$	-1'64	+0'04	$\begin{smallmatrix} s \\ 59 \cdot 24 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 43 \cdot 67 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ -0 & 15 \cdot 57 \end{smallmatrix}$			
" 28	I.P.E.	E	1958 Gr. 72	L	3	+0'1584	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 46 \cdot 10 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'46 & -0'39 \end{smallmatrix}$	+1'63	$\begin{smallmatrix} s \\ 46 \cdot 88 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 51 \cdot 16 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 4 \cdot 28 \end{smallmatrix}$	$\begin{smallmatrix} d \\ -0 \cdot 2 \end{smallmatrix}$	+0'7				
		"	908 "	U	5	-0'1362	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 23 \cdot 64 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'44 & +0'76 \end{smallmatrix}$	-1'63	+0'02	$\begin{smallmatrix} s \\ 23 \cdot 23 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 27 \cdot 56 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 4 \cdot 33 \end{smallmatrix}$					
		"	2209 "	L	3	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 35 \cdot 70 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'08 & -1'20 \end{smallmatrix}$	-1'63	$\begin{smallmatrix} s \\ 31 \cdot 79 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 36 \cdot 07 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 4 \cdot 28 \end{smallmatrix}$						
		"	1138 "	U	3	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 38 \cdot 87 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +2'18 & +3'00 \end{smallmatrix}$	-1'63	+0'04	$\begin{smallmatrix} s \\ 42 \cdot 46 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 45 \cdot 08 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 2 \cdot 62 \end{smallmatrix}$					
Mar. 2	I.P.W.	E	1958 Gr. 72	L	4	+0'1584	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 41 \cdot 55 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'36 & -0'24 \end{smallmatrix}$	+1'63	$\begin{smallmatrix} s \\ 43 \cdot 30 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 8 & 50 & 51 \cdot 29 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 7 \cdot 99 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +8 \cdot 1 \end{smallmatrix}$	+5'8				
		"	908 "	U	4	-0'1362	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 23 \cdot 35 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -0'35 & +0'48 \end{smallmatrix}$	-1'63	+0'02	$\begin{smallmatrix} s \\ 21 \cdot 87 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 27 \cdot 48 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 5 \cdot 61 \end{smallmatrix}$					
		"	2209 "	L	4	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 28 \cdot 98 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'85 & -0'75 \end{smallmatrix}$	-1'63	$\begin{smallmatrix} s \\ 27 \cdot 45 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 35 \cdot 89 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 8 \cdot 44 \end{smallmatrix}$						
		"	1138 "	U	3	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 42 \cdot 53 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'71 & +1'88 \end{smallmatrix}$	-1'63	+0'04	$\begin{smallmatrix} s \\ 41 \cdot 11 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 45 \cdot 78 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 4 \cdot 67 \end{smallmatrix}$					
" 8	I.P.E.	E	908 Gr. 72	U	2	-0'1362	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 21 \cdot 25 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +0'41 & +0'74 \end{smallmatrix}$	-1'63	$\begin{smallmatrix} s \\ 20 \cdot 77 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 9 & 20 & 27 \cdot 44 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 6 \cdot 67 \end{smallmatrix}$	$\begin{smallmatrix} d \\ +5 \cdot 8 \end{smallmatrix}$	+5'6				
		"	2209 "	L	3	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 29 \cdot 93 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'01 & -1'16 \end{smallmatrix}$	-1'63	+0'10	$\begin{smallmatrix} s \\ 26 \cdot 23 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 35 \cdot 79 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 9 \cdot 56 \end{smallmatrix}$					
		"	2209 "	L	3	+0'3654	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 29 \cdot 93 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ -1'01 & -1'16 \end{smallmatrix}$	-1'63	$\begin{smallmatrix} s \\ 26 \cdot 13 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 11 & 27 & 35 \cdot 79 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 9 \cdot 66 \end{smallmatrix}$						
		"	1138 "	U	3	-0'7096	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 38 \cdot 87 \end{smallmatrix}$	$\begin{smallmatrix} s & s \\ +2'02 & +2'90 \end{smallmatrix}$	-1'63	+0'04	$\begin{smallmatrix} s \\ 42 \cdot 20 \end{smallmatrix}$	$\begin{smallmatrix} h & m & s \\ 12 & 14 & 46 \cdot 14 \end{smallmatrix}$	$\begin{smallmatrix} m & s \\ +0 & 3 \cdot 94 \end{smallmatrix}$					

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $\alpha$	Arithmetic Mean $\alpha$
									$h\ m\ s$	$s$	$s$	Pen Equation Q	Approximate Clock Rate	$s$	$h\ m\ s$	$m\ s$	$d$	$d$
CALCUTTA AND JUBBULPORE																		
		1883		E	1958 Gr. 72	L	3	+0.1579	9 24 23.13	+0.25	-0.04	+1.69		25.03	8 50 50.78	-33 34.25	+41.3	
	Feb. 22	I.P.W.	"	W	908 "	U	4	-0.1354	9 54 16.02	-0.24	+0.07	-1.69	+0.02	14.18	9 20 27.79	-33 46.39		+42.2
			"	"	2209 "	L	4	+0.3639	11 27 17.12	+0.58	-0.12	-1.69		15.89	11 27 36.63	+0 20.74	+43.1	
			"	"	1138 "	U	2	-0.7066	12 15 11.10	-1.17	+0.29	-1.69	-0.14	8.39	12 14 42.97	-0 25.42		
			E	1958 Gr. 72	L	5	+0.1579	9 24 28.34	+0.11	+0.07	+1.70		30.22	8 50 50.85	-33 39.37	+2.9		
	" 23	I.P.E.	"	U	908 "	7	-0.1354	9 54 9.94	-0.11	-0.14	-1.70	+0.02	8.01	9 20 27.75	-33 40.26		+2.2	
			W	2209 "	L	4	+0.3639	11 27 28.52	+0.27	+0.22	-1.70		27.31	11 27 36.55	+0 9.24	+1.4		
			"	"	1138 "	U	2	-0.7066	12 14 38.55	-0.54	-0.56	-1.70	-0.14	35.61	12 14 43.32	+0 7.71		
			W	$\epsilon$ Corvi	U	10	+0.0172	12 3 56.65	-0.03	-0.01	-1.75		54.86	12 4 9.19	+0 14.33	+29.9		
	" 24	I.P.W.	"	U	1138 Gr. 72	3	-0.7066	12 14 53.93	-1.01	-0.13	-1.75	-0.03	51.01	12 14 43.67	-0 7.34		+29.6	
			"	U	1138 "	3	-0.7066	12 14 53.93	-1.01	-0.13	-1.75		51.04	12 14 43.67	-0 7.37	+29.3		
			"	U	$\alpha$ Crucis	18	+0.0485	12 19 57.41	-0.06	0.00	-1.75	-0.02	55.58	12 20 10.33	+0 14.75			
			E	1958 Gr. 72	L	5	+0.1579	9 24 19.06	+0.21	-0.03	+1.69		20.93	8 50 51.19	-33 29.74	+24.7		
	" 28	I.P.E.	"	U	908 "	5	-0.1354	9 54 6.40	-0.21	+0.06	-1.69	+0.02	4.58	9 20 27.56	-33 37.02		+25.1	
			W	2209 "	L	4	+0.3639	11 26 54.05	+0.50	-0.09	-1.69		52.77	11 27 36.11	+0 43.34	+25.5		
			"	"	1138 "	U	3	-0.7066	12 14 31.70	-1.01	+0.23	-1.69	-0.14	29.09	12 14 45.08	+0 15.99		
			W	$\lambda$ Ursæ Minoris	L	2	+1.1372	7 38 18.95	+0.74	-0.97	+1.69		20.41	7 39 57.63	+1 37.22	+48.1		
	Mar. 2	I.P.W.	"	U	908 Gr. 72	5	-0.1354	9 19 50.00	-0.10	+0.17	+1.69	-0.31	51.45	9 20 27.48	+0 36.03		+48.7	
			"	L	2209 "	3	+0.3639	11 26 36.77	+0.23	-0.28	-1.69		35.03	11 27 35.93	+1 0.90	+49.2		
			"	U	1138 "	2	-0.7066	12 14 39.15	-0.47	+0.69	-1.69	-0.14	37.54	12 14 45.79	+0 8.25			
			W	1961 Gr. 72	L	9	+0.1275	8 51 54.46	+0.16	+0.01	+1.68		56.31	8 52 45.60	+0 49.29	+20.9		
	" 3	I.P.E.	"	U	908 "	5	-0.1354	9 19 42.30	-0.19	-0.02	+1.68	-0.08	43.69	9 20 27.44	+0 43.75		+19.4	
			"	L	2209 "	3	+0.3639	11 26 42.70	+0.46	+0.03	-1.68		41.51	11 27 35.84	+0 54.33	+17.9		
			"	U	1138 "	2	-0.7066	12 14 13.80	-0.93	-0.07	-1.68	-0.14	10.98	12 14 46.14	+0 35.16			
FYZABAD AND JUBBULPORE																		
		1883		E	981 Gr. 72	U	5	-0.1571	10 17 9.92	+0.30	+0.44	-1.39		9.27	10 16 52.32	-0 16.95	-17.9	-17.9
	Mar. 14	I.P.E.	"	L	2109 "	3	+0.2665	10 22 41.73	-0.46	-0.46	-1.39	-0.02	39.40	10 22 14.89	-0 24.51			
			E	981 Gr. 72	U	4	-0.1571	10 17 17.63	-0.06	+0.93	-1.38		17.12	10 16 52.25	-0 24.87	-4.4		
	" 15	I.P.W.	"	L	2109 "	5	+0.2665	10 22 44.02	+0.09	-0.97	-1.38	-0.02	41.74	10 22 15.00	-0 26.74		-6.3	
			W	2209 "	L	3	+0.3551	11 18 49.63	+0.12	-1.37	-1.38		47.00	11 27 35.57	+8 48.57	-8.1		
			"	U	1138 "	3	-0.6841	12 5 49.87	-0.23	+3.30	-1.38	+0.06	51.62	12 14 48.58	+8 56.96			

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

FYZABAD AND JUBBULPORE																		
Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
									$h$ $m$ $s$	$s$	$s$	Pen Equation Q	Approximate Clock Rate	$s$	$h$ $m$ $s$	$m$ $s$	$d$	$d$
		1883		E	981 Gr. 72	U	5	-0.1571	10 17 25.46	+0.13	+0.24	-1.38		24.45	10 16 52.18	-0.32.27	+4.3	
	Mar. 16	I.P.E.		"	2109 "	L	4	+0.2665	10 22 47.40	-0.20	-0.25	-1.38	-0.02	45.55	10 22 15.10	-0.30.45		-0.9
				W	2209 "	L	3	+0.3551	11 18 47.27	-0.27	-0.35	-1.38		45.27	11 27 35.62	+8.50.35	-6.1	
				"	1138 "	U	3	-0.6841	12 5 51.90	+0.54	+0.85	-1.38	+0.06	51.97	12 14 48.66	+8.56.69		
				E	981 Gr. 72	U	4	-0.1571	10 17 30.70	+0.04	-0.08	-1.39		29.27	10 16 52.12	-0.37.15	+1.4	
	" 17	I.P.W.		"	2109 "	L	4	+0.2665	10 22 53.15	-0.06	+0.09	-1.39	-0.02	51.77	10 22 15.20	-0.36.57		-1.1
				W	2209 "	L	4	+0.3551	11 18 43.30	-0.08	+0.12	-1.39		41.95	11 27 35.66	+8.53.71	-3.6	
				"	1138 "	U	3	-0.6841	12 5 52.73	+0.16	-0.30	-1.39	+0.06	51.26	12 14 48.74	+8.57.48		
				E	981 Gr. 72	U	5	-0.1571	10 17 34.54	-0.25	-0.11	-1.38		32.80	10 16 52.05	-0.40.75	-3.6	
	" 18	I.P.E.		"	2109 "	L	4	+0.2665	10 22 58.48	+0.37	+0.12	-1.38	-0.02	57.57	10 22 15.31	-0.42.26		-2.9
				W	2209 "	L	4	+0.3551	11 18 40.83	+0.50	+0.17	-1.38		40.12	11 27 35.70	+8.55.58	-2.2	
				"	1138 "	U	3	-0.6841	12 5 53.73	-1.01	-0.41	-1.38	+0.06	50.99	12 14 48.82	+8.57.83		
				E	981 Gr. 72	U	5	-0.1571	10 17 42.22	+0.30	+0.93	-1.39		42.06	10 16 51.98	-0.50.08	+7.0	
	" 19	I.P.W.		"	2109 "	L	4	+0.2665	10 23 5.35	-0.46	-0.97	-1.39	-0.02	2.51	10 22 15.41	-0.47.10		+5.7
				W	2209 "	L	3	+0.3551	11 18 38.83	-0.62	-1.37	-1.39		35.45	11 27 35.74	+8.59.29	+4.4	
				"	1138 "	U	3	-0.6841	12 5 50.33	+1.24	+3.93	-1.39	+0.06	54.17	12 14 48.90	+8.54.73		
				E	981 Gr. 72	U	5	-0.1571	10 17 48.76	-0.36	+0.15	-1.39		47.16	10 16 51.91	-0.55.25	+4.7	
	" 20	I.P.E.		"	2109 "	L	4	+0.2665	10 23 9.78	+0.55	-0.15	-1.39	-0.02	8.77	10 22 15.52	-0.53.25		+1.3
				W	2209 "	L	3	+0.3551	11 18 34.30	+0.74	-0.22	+1.39		36.21	11 27 35.78	+8.59.57	-2.1	
				"	1138 "	U	3	-0.6841	12 5 49.57	-1.48	+0.52	-1.39	+0.06	47.28	12 14 48.99	+9.1.71		
	JUBBULPORE (Latitude $23^{\circ} 10'$ )																	
		1883		E	981 Gr. 72	U	2	-0.1634	10 25 59.70	+0.13	+0.14	-1.69		58.28	10 16 52.32	-9.5.96	+8.7	
	Mar. 14	I.P.E.		"	2109 "	L	1	+0.2728	10 31 19.00	-0.20	-0.14	-1.69	-0.02	16.95	10 22 14.89	-9.2.06		+7.6
				W	1138 "	U	2	-0.7066	12 14 51.85	+0.39	+0.49	-1.69		51.04	12 14 48.50	-0.2.54	+6.4	
				"	$\alpha$ Ursæ Minoris	L	2	+0.9126	13 15 22.50	-0.49	-0.55	-1.69	+0.08	19.85	13 15 27.72	+0.7.87		
				E	981 Gr. 72	U	4	-0.1634	10 26 6.10	-0.40	+0.03	-1.70		4.03	10 16 52.25	-9.11.78	+5.9	
	" 15	I.P.W.		"	2109 "	L	4	+0.2728	10 31 25.35	+0.60	-0.03	-1.70	-0.02	24.20	10 22 15.00	-9.9.20		+5.6
				W	2209 "	L	3	+0.3639	11 27 27.87	+1.12	0.00	-1.70		27.29	11 27 35.57	+0.8.28	+5.3	
				"	1138 "	U	3	-0.7066	12 14 49.90	-2.26	0.00	-1.70	+0.06	46.00	12 14 48.58	+0.2.58		
				E	981 Gr. 72	U	4	-0.1634	10 26 12.70	+0.08	-0.09	-1.69		11.00	10 16 52.18	-9.18.82	+14.7	
	" 16	I.P.E.		"	2109 "	L	4	+0.2728	10 31 29.23	-0.12	+0.09	-1.69	-0.02	27.49	10 22 15.10	-9.12.39		+14.9
				W	2209 "	L	3	+0.3639	11 27 24.93	-0.46	+0.16	-1.69		22.94	11 27 35.62	+0.12.68	+15.0	
				"	1138 "	U	3	-0.7066	12 14 53.13	+0.93	-0.39	-1.69	+0.06	52.04	12 14 48.66	-0.3.38		

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deduced Value of Deviation Correction $a_1$	Arithmetic Mean $a$
										Collimation	Level	Pen Equation Q	Approximate Clock Rate					
FYZABAD AND JUBBULPORE	JUBBULPORE (Latitude $23^{\circ} 10'$ )	1883 Mar. 17	I.P.W.	E	981 Gr. 72	U	5	-0°16'34	10 26 20.42	-0°23	-0°11	-1°71	s	18.37	10 16 52.12	- 9 26.25	d	d
				"	2109 "	L	4	+0°27'28	10 31 31.48	+0°35	+0°11	-1°71	-0°02	30.21	10 22 15.20	- 9 15.01	+25.8	+23.8
				W	2209 "	L	3	+0°36'39	11 27 17.90	+0°85	+0°18	-1°71		17.22	11 27 35.66	+ 0 18.44	+21.8	
				"	1138 "	U	3	-0°70'66	12 14 57.43	-1°71	-0°46	-1°71	+0°06	53.61	12 14 48.74	- 0 4.87		
		" 18	I.P.E.	E	981 Gr. 72	U	4	-0°16'34	10 26 24.18	0°00	-0°06	-1°71		22.41	10 16 52.05	- 9 30.36	+18.1	
				"	2109 "	L	4	+0°27'28	10 31 39.45	0°00	+0°06	-1°71	-0°02	37.78	10 22 15.31	- 9 22.47	+16.4	
				W	2209 "	L	3	+0°36'39	11 27 19.67	-0°35	+0°13	-1°71		17.74	11 27 35.70	+ 0 17.96	+14.7	
				"	1138 "	U	3	-0°70'66	12 14 47.93	+0°70	-0°33	-1°71	+0°06	46.65	12 14 48.82	+ 0 2.17		
		" 19	I.P.W.	E	981 Gr. 72	U	4	-0°16'34	10 26 31.40	-0°06	+0°09	-1°70		29.73	10 16 51.98	- 9 37.75	+26.2	
				"	2109 "	L	4	+0°27'28	10 31 43.48	+0°09	-0°09	-1°70	-0°02	41.76	10 22 15.41	- 9 26.35	+23.7	
				W	2209 "	L	3	+0°36'39	11 27 15.20	+0°31	+0°05	-1°70		13.86	11 27 35.74	+ 0 21.88	+21.2	
				"	1138 "	U	3	-0°70'66	12 14 52.13	-0°62	-0°14	-1°70	+0°06	49.73	12 14 48.90	- 0 0.83		
		" 20	I.P.E.	E	981 Gr. 72	U	4	-0°16'34	10 26 37.93	+0°02	-0°02	-1°69		36.24	10 16 51.91	- 9 44.33	+31.8	
				"	2109 "	L	4	+0°27'28	10 31 47.70	-0°03	+0°02	-1°69	-0°02	45.98	10 22 15.52	- 9 30.46	+31.7	
				W	2209 "	L	3	+0°36'39	11 27 10.97	-0°50	0°00	-1°69		8.78	11 27 35.78	+ 0 27.00	+31.5	
				"	1138 "	U	3	-0°70'66	12 14 56.33	+1°01	0°00	-1°69	+0°06	55.71	12 14 48.99	- 0 6.72		
FYZABAD AND AGRA	FYZABAD (Latitude $26^{\circ} 47'$ )	1883 Mar. 28	I.P.E.	E	1002 Gr. 72	U	4	-0°11'72	10 31 36.30	+0°23	+0°57	+1°40		38.50	10 32 0.82	+ 0 22.32	- 1.7	
				"	2154 "	L	4	+0°16'34	10 47 26.23	-0°28	-0°39	+1°40	-0°06	26.90	10 47 48.73	+ 0 21.83	- 1.1	
				W	1191 "	U	4	-0°18'26	12 31 46.45	+0°35	+0°88	+1°40		49.08	12 48 17.23	+16 28.15	- 0.9	
				"	1192 "	U	4	-0°18'26	12 31 53.85	+0°35	+0°88	+1°40		56.48	12 48 24.99	+16 28.51	- 0.2	
				"	$\alpha$ Ursæ Minoris	L	3	+0°88'68	12 59 2.80	-1°57	-3°17	-1°40	-0°12	56.54	13 15 23.91	+16 27.37	- 0.5	
				"	1270 Gr. 72	U	3	-0°16'18	13 29 22.67	+0°31	+0°80	-1°40	-0°25	22.13	13 45 49.70	+16 27.57	- 4.3	
		" 29	I.P.W.	E	2154 Gr. 72	L	5	+0°16'34	10 47 31.18	+0°28	+0°01	+1°38		32.85	10 47 48.82	+ 0 16.67*	- 2.4	
				W	$\alpha$ Ursæ Minoris	L	2	+0°88'68	12 59 3.05	+1°57	-0°51	-1°38		2.73	13 15 23.87	+16 21.14	- 5.7	
				"	1270 Gr. 72	U	5	-0°16'18	13 29 29.78	-0°31	+0°13	-1°38	-0°13	28.09	13 45 49.74	+16 21.65	- 6.6	
				E	1002 Gr. 72	U	5	-0°11'72	10 31 47.56	+0°04	-0°09	+1°39		48.90	10 32 0.67	+ 0 11.77	- 4.4	
		" 30	I.P.E.	"	2154 "	L	4	+0°16'34	10 47 37.05	-0°05	+0°06	+1°39	-0°06	38.39	10 47 48.91	+ 0 10.52	- 5.7	
				W	1191 "	U	4	-0°18'26	12 31 58.73	+0°07	-0°21	+1°39		59.98	12 48 17.22	+16 17.24	- 7.3	
				"	1192 "	U	4	-0°18'26	12 32 6.70	+0°07	-0°21	+1°39		7.95	12 48 24.98	+16 17.03	- 6.6	
				"	$\alpha$ Ursæ Minoris	L	3	+0°88'68	12 59 15.47	-0°29	+0°76	-1°39	-0°12	14.43	13 15 23.82	+16 9.39	- 6.6	
				"	1270 Gr. 72	U	4	-0°16'18	13 29 35.20	+0°06	-0°19	-1°39	-0°25	33.43	13 45 49.79	+16 16.36		
				"														

\* True clock correction obtained from mean of the preceding and following days.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

FYZABAD AND AGRA																		
Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $a_1$	Arithmetic Mean $a$
									$h$ $m$ $s$	$s$	$s$	$s$	$s$	$h$ $m$ $s$	$m$ $s$	$d$	$d$	
		1883		E	$\alpha$ Ursæ Majoris	U	15	-0.0283	10 56 26.32	+0.03	+0.30	+1.39		28.04	10 56 33.38	+ 0 5.34	- 8.3	
				"	$\delta$ Crateris	U	4	+0.0152	11 13 28.53	+0.01	+0.13	-1.39	-0.06	27.22	11 13 32.20	+ 0 4.98		
	Mar. 31	I.P.W.		W	1191 Gr. 72	U	3	-0.1826	12 32 3.17	+0.13	+0.89	+1.39		5.58	12 48 17.22	+16 11.64	- 9.4	
				"	1192 "	U	3	-0.1826	12 32 11.23	+0.13	+0.89	+1.39		13.64	12 48 24.98	+16 11.34	-10.6	
				"	$\alpha$ Ursæ Minoris	L	2	+0.8868	12 59 28.90	-0.59	-3.21	-1.39	-0.12	23.59	13 15 23.76	+16 0.17	-10.2	
				"	1270 Gr. 72	U	5	-0.1618	13 29 39.68	+0.12	+0.81	-1.39	-0.25	38.97	13 45 49.84	+16 10.87		
				E	1002 Gr. 72	U	5	-0.1172	10 32 9.12	+0.10	+0.34	+1.39		10.95	10 32 0.37	- 0 10.58	+ 2.2	
				"	2154 "	L	5	+0.1634	10 47 58.24	-0.12	-0.23	+1.39	-0.06	59.22	10 47 49.27	- 0 9.95		
	Apr. 3	I.P.E.		W	1191 "	U	5	-0.1826	12 32 24.44	+0.15	+0.47	+1.39		26.45	12 48 17.21	+15 50.76	+ 0.8	
				"	1192 "	U	5	-0.1826	12 32 32.00	+0.15	+0.47	+1.39		34.01	12 48 24.98	+15 50.97	- 0.7	
				"	$\alpha$ Ursæ Minoris	L	3	+0.8868	12 59 37.10	-0.69	-1.69	-1.39	-0.12	33.21	13 15 23.38	+15 50.17	- 0.6	
				"	1270 Gr. 72	U	5	-0.1618	13 29 60.26	+0.14	+0.43	-1.39	-0.25	59.19	13 45 49.97	+15 50.78		
				E	1002 Gr. 72	U	5	-0.1172	10 32 14.44	-0.12	+0.11	+1.38		15.81	10 32 0.29	- 0 15.52	+ 1.8	
				"	2154 "	L	6	+0.1634	10 48 4.02	+0.14	-0.07	+1.38	-0.06	5.41	10 47 49.37	- 0 16.04		
	"	4	I.P.W.	W	1191 "	U	4	-0.1826	12 32 31.40	-0.17	+0.35	+1.38		32.96	12 48 17.21	+15 44.25	+ 0.1	
				"	1192 "	U	4	-0.1826	12 32 39.10	-0.17	+0.35	+1.38		40.66	12 48 24.98	+15 44.32	- 1.7	
				"	$\alpha$ Ursæ Minoris	L	3	+0.8868	12 59 42.70	+0.79	-1.27	-1.38	-0.12	40.72	13 15 23.24	+15 42.52	- 1.6	
				"	1270 Gr. 72	U	5	-0.1618	13 30 7.32	-0.16	+0.32	-1.38	-0.25	5.85	13 45 50.02	+15 44.17		
AGRA (Latitude $27^{\circ} 10'$ )																		
		1883		W	1002 Gr. 72	U	9	-0.1166	10 31 57.89	+0.06	+0.02	0.00		57.97	10 32 0.82	+ 0 2.85	-19.2	
				"	2154 "	L	8	+0.1630	10 47 49.81	-0.07	-0.01	+1.58	-0.07	51.24	10 47 48.73	- 0 2.51		
	Mar. 28	I.P.E.		"	1191 "	U	4	-0.1818	12 48 14.98	+0.09	+0.02	0.00		15.09	12 48 17.23	+ 0 2.14	-17.0	
				"	1192 "	U	4	-0.1818	12 48 22.20	+0.09	+0.02	0.00		22.31	12 48 24.99	+ 0 2.68	-14.7	
				"	$\alpha$ Ursæ Minoris	L	2	+0.8840	13 15 37.80	-0.39	-0.09	0.00	-0.12	37.20	13 15 23.91	- 0 13.29	-15.0	
				"	1270 Gr. 72	U	4	-0.1611	13 45 47.50	+0.08	+0.02	0.00	-0.25	47.35	13 45 49.70	+ 0 2.35		
				W	1002 Gr. 72	U	8	-0.1166	10 32 2.13	-0.26	-0.10	+1.56		3.33	10 32 0.75	- 0 2.58	-20.7	
	"	29	I.P.W.	"	$\alpha$ Ursæ Minoris	L	2	+0.8840	13 15 47.20	+1.77	+0.52	-1.56	-0.71	47.22	13 15 23.88	- 0 23.34	-20.4	
				"	1270 Gr. 72	U	4	-0.1611	13 45 54.90	-0.35	-0.13	-1.56	-0.85	52.01	13 45 49.74	- 0 2.27	-20.2	
				W	1002 Gr. 72	U	9	-0.1166	10 32 5.76	-0.13	-0.14	+1.57		7.06	10 32 0.67	- 0 6.39	-39.8	
				"	2154 "	L	9	+0.1630	10 48 4.66	+0.16	+0.10	+1.57	-0.07	6.42	10 47 48.91	- 0 17.51	-39.5	
	"	30	I.P.E.	"	1191 "	U	6	-0.1818	12 48 21.28	-0.20	-0.20	+1.57		22.45	12 48 17.22	- 0 5.23		
				"	1192 "	U	6	-0.1818	12 48 28.85	-0.20	-0.20	+1.57		30.02	12 48 24.98	- 0 5.04	-39.2	
				"	$\alpha$ Ursæ Minoris	L	2	+0.8840	13 16 10.90	+0.88	+0.73	-1.57	-0.12	10.82	13 15 23.82	- 0 47.00		

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

FYZABAD AND AGRA																		
Arc	Station	Astronomical Date	Instrumental Position	Clock in use	Star	Culmination	No. of Wires Observed	Deviation Constant A	Observed Time of Transit	Corrections for				Seconds of Corrected Time of Transit	Right Ascension (Increased by 12 hours for Lower Culmination)	Apparent Clock Corrections	Deducted Value of Deviation Correction $\alpha_1$	Arithmetic Mean $\alpha$
									$h$ $m$ $s$					$h$ $m$ $s$	$m$ $s$	$d$	$d$	
		1883		W	1002 Gr. 72	U	8	-0.1166	10 32 10.23	-0.13	-0.02	+1.60		11.68	10 32 0.59	- 0 11.09	-49.9	
				"	2154 "	L	10	+0.1630	10 48 12.36	+0.16	+0.01	+1.60	-0.07	14.06	10 47 49.00	- 0 25.06		-52.4
	Mar. 31	I.P.W.		"	1191 "	U	5	-0.1818	12 48 24.16	-0.20	-0.02	+1.60		25.54	12 48 17.22	- 0 8.32		
				"	1192 "	U	5	-0.1818	12 48 32.28	-0.20	-0.02	+1.60		33.66	12 48 24.98	- 0 8.68	-54.8	
				"	$\alpha$ Ursæ Minoris	L	3	+0.8840	13 16 31.37	+0.88	+0.09	-1.60	-0.12	30.62	13 15 23.76	- 1 6.86		
				W	1002 Gr. 72	U	8	-0.1166	10 32 34.34	+0.04	-0.20	+1.52		35.70	10 32 0.37	- 0 35.33	- 5.8	
				"	2154 "	L	8	+0.1630	10 48 24.69	-0.05	+0.13	+1.52	-0.07	26.22	10 47 49.27	- 0 36.95		
	Apr. 3	I.P.E.		"	1191 "	U	5	-0.1818	12 48 52.02	+0.07	-0.27	+1.52		53.34	12 48 17.21	- 0 36.13	- 8.4	
				"	1192 "	U	5	-0.1818	12 48 59.36	+0.07	-0.27	+1.52		60.68	12 48 24.98	- 0 35.70	-11.0	
				"	$\alpha$ Ursæ Minoris	L	2	+0.8840	13 16 11.95	-0.29	+0.99	-1.52	-0.12	11.01	13 15 23.38	- 0 47.63	-10.8	
				"	1270 Gr. 72	U	5	-0.1611	13 46 28.26	+0.06	-0.25	-1.52	-0.25	26.30	13 45 49.97	- 0 36.33		
				W	1002 Gr. 72	U	10	-0.1166	10 32 37.67	+0.12	+0.04	+1.59		39.42	10 32 0.29	- 0 39.13	-27.5	
				"	2154 "	L	10	+0.1630	10 48 34.85	-0.14	-0.03	+1.59	-0.07	36.20	10 47 49.37	- 0 46.83		
	" 4	I.P.W.		"	1191 "	U	5	-0.1818	12 48 53.78	+0.17	+0.06	+1.59		55.60	12 48 17.21	- 0 38.39	-29.0	
				"	1192 "	U	5	-0.1818	12 49 1.04	+0.17	+0.06	+1.59		2.86	12 48 24.98	- 0 37.88	-30.4	
				"	$\alpha$ Ursæ Minoris	L	2	+0.8840	13 16 36.55	-0.79	-0.21	-1.59	-0.12	33.84	13 15 23.24	- 1 10.60	-30.5	
				"	1270 Gr. 72	U	3	-0.1611	13 46 30.40	+0.16	+0.05	-1.59	-0.25	28.77	13 45 50.02	- 0 38.75		

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q +	Q -	Q -	Q +	Q +	Q -	Q -	Q +
1882 December 4	s 0'95	s 0'50	s 0'94	s 0'20	s 0'80	s 0'30	s 1'00	s 0'30
	'95	'50	'89	'18	'80	'31	0'95	'29
	'94	'50	'89	'20	'80	'30	'97	'31
	'95	'46	'85	'20	'80	'30	'98	'30
	'98	'50	'85	'20	'80	'30	'98	'31
	'95	'50	'88	'22	'80	'30	'98	'33
	'96	'47	'88	'21	'80	'30	1'00	'31
	'95	'50	'88	'22	'80	'30	1'00	'33
	'94	'48	'88	'20	'80	'30	1'00	'32
	'95	'50	'89	'20	'80	'31	0'97	'33
	'95	'50	'90	'17	'80	'30	1'00	'32
	'95	'49	'84	'18	'80	'30	1'00	'33
	'93	'50	'85	'16	'79	'31	0'96	'30
	'92	'47	'85	'15	'79	'31	1'00	'31
	'95	'50	'90	'15	'80	'30	0'96	'29
	'95	'50	'85	'13	'78	'32	1'00	'31
	'95	'48	'84	'22	'79	'30	1'00	'28
	'94	'46	'84	'17	'77	'31	1'00	'25
	'93	'49	'85	'23	'77	'30	1'00	'32
	'90	'50	'85	'27	'77	'34	1'00	'33
Corresponding Mean Observed Times by	h m s 4 28 11	h m s 4 31 11	h m s 4 29 25	h m s 4 32 28	h m s 5 49 11	h m s 5 52 30	h m s 5 50 25	h m s 5 54 2
			s +0'870	s +0'193			s +0'988	s +0'309
	h m s 3 59 56	h m s 4 2 53	h m s 4 1 11	h m s 4 4 11	h m s 5 20 56	h m s 5 24 12	h m s 5 22 11	h m s 5 25 45
	s +0'945	s +0'490			s +0'793	s +0'306		
Difference	m s 28 14'055	m s 28 17'510	m s 28 14'870	m s 28 17'193	m s 28 14'207	m s 28 17'694	m s 28 14'988	m s 28 17'309



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1882 December 5	<i>s</i> 0'60	<i>s</i> 0'05	<i>s</i> 0'10	<i>s</i> 0'70	<i>s</i> 0'60	<i>s</i> 0'98	<i>s</i> 0'85	<i>s</i> 0'10
	'60	'07	'07	'70	9'60	'97	'85	'12
	'60	'09	'10	'65	10'50	1'00	'84	'12
	'65	'07	'15	'70	11'50	1'00	'83	'13
	'60	'09	'10	'71	12'60	0'96	'85	'13
	'60	'07	'10	'75	13'50	'97	'85	'13
	'60	'10	'12	'79	19'50	1'00	'85	'13
	'60	'10	'06	'77	20'55	1'00	'85	'15
	'60	'10	'07	'80	21'50	0'98	'88	'13
	'60	'08	'06	'77	22'49	'99	'85	'10
	'60	'10	'04	'74	23'50	'98	'85	'12
	'60	'10	'07	'74	24'50	'96	'85	'12
	'60	'10	'06	'73	25'50	1'00	'85	'13
	'60	'10	'06	'76	26'49	0'97	'87	'14
	'60	'13	'04	'74	27'50	'97	'86	'15
	'60	'10	'05	'72	28'49	'99	'86	'10
	'60	'11	'05	'72	29'50	'97	'87	'14
	'60	'07	'04	'70	30'50	'99	'88	'11
	'60	'11	'05	'70	31'50	1'00	'87	'13
	'60	'08	'04	'74	32'49	0'97	'88	'14
Corresponding Mean Observed Times by	E Clock <i>h m s</i> 4 28 15	<i>h m s</i> 4 31 45	<i>h m s</i> 4 33 34	<i>h m s</i> 4 36 27	<i>h m s</i> 5 51 41	<i>h m s</i> 5 52 6	<i>h m s</i> 5 50 27	<i>h m s</i> 5 53 30
	<i>s</i> +0'603	<i>s</i> +0'091	<i>s</i> +0'072	<i>s</i> +0'732	<i>s</i> +0'516	<i>s</i> +0'983	<i>s</i> +0'857	<i>s</i> +0'126
	<i>h m s</i> 3 59 55	<i>h m s</i> 4 3 29	<i>h m s</i> 4 5 15	<i>h m s</i> 4 8 11	<i>h m s</i> 5 23 21	<i>h m s</i> 5 23 49	<i>h m s</i> 5 22 11	<i>h m s</i> 5 25 11
Difference	<i>m s</i> 28 19'397	<i>m s</i> 28 15'909	<i>m s</i> 28 19'072	<i>m s</i> 28 16'732	<i>m s</i> 28 19'484	<i>m s</i> 28 16'017	<i>m s</i> 28 16'857	<i>m s</i> 28 19'126

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$	$Q -$	$Q +$
1882 December 6	$s$ 0'60	$s$ 0'23	$s$ 0'60	$s$ 0'94	$s$ 0'57	$s$ 0'05	$s$ 0'69	$s$ 0'02
	'62	'15	'60	'94	'60	'02	'69	'01
	'60	'23	'60	'94	'55	'04	'60	'02
	'65	'15	'60	'95	'60	'00	'70	'02
	'64	'21	'60	'90	'56	'04	'70	'02
	'69	'20	'59	'97	'59	'04	'70	'01
	'70	'20	'60	'98	'57	'05	'70	'01
	'71	'21	'58	'95	'57	'05	'70	'02
	'75	'21	'57	'95	'59	'07	'69	'01
	'71	'20	'60	'90	'60	'04	'68	'01
	'72	'20	'59	'97	'55	'05	'67	'01
	'70	'22	'59	'98	'56	'04	'66	'03
	'73	'20	'60	'96	'57	'05	'65	'03
	'75	'17	'55	'97	'57	'04	'64	'05
	'79	'20	'60	'99	'60	'07	'63	'05
	'75	'20	'56	'96	'58	'03	'65	'05
	'71	'22	'60	1'03	'58	'03	'65	'03
	'71	'22	'58	0'94	'59	'04	'67	'10
	'75	'20	'60	'97	'60	'04	'64	'10
	'74	'20	'60	'93	'56	'03	'64	'10
Corresponding Mean Observed Times by	$h\ m\ s$ 4 28 55	$h\ m\ s$ 4 31 29	$h\ m\ s$ 4 30 29	$h\ m\ s$ 4 33 31	$h\ m\ s$ 5 49 32	$h\ m\ s$ 5 52 29	$h\ m\ s$ 5 50 29	$h\ m\ s$ 5 54 21
			$s$ +0'591	$s$ +0'956			$s$ +0'668	$s$ +0'035
	$h\ m\ s$ 4 0 33	$h\ m\ s$ 4 3 11	$h\ m\ s$ 4 2 11	$h\ m\ s$ 4 5 11	$h\ m\ s$ 5 21 10	$h\ m\ s$ 5 24 11	$h\ m\ s$ 5 22 11	$h\ m\ s$ 5 26 0
	$s$ +0'701	$s$ +0'201			$s$ +0'578	$s$ +0'041		
Difference	$m\ s$ 28 21'299	$m\ s$ 28 17'799	$m\ s$ 28 18'591	$m\ s$ 28 20'956	$m\ s$ 28 21'422	$m\ s$ 28 17'959	$m\ s$ 28 18'668	$m\ s$ 28 21'035

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1882 December 7	<i>s</i> 0·84	<i>s</i> 0·30	<i>s</i> 0·51	<i>s</i> 0·82	<i>s</i> 0·70	<i>s</i> 0·08	<i>s</i> 0·57	<i>s</i> 1·04
	·89	·30	·52	·86	·70	·10	·60	0·97
	·89	·25	·59	·85	·71	·12	·62	1·00
	·86	·25	·59	·84	·70	·07	·60	0·99
	·87	·33	·53	·85	·70	·12	·62	·98
	·88	·25	·55	·84	·70	·10	·64	·94
	·85	·24	·54	·89	·70	·10	·62	·92
	·84	·26	·53	·87	·70	·09	·60	1·00
	·85	·27	·50	·95	·71	·10	·61	0·93
	·86	·30	·50	·90	·70	·10	·60	·99
	·84	·30	·51	·88	·70	·12	·68	·95
	·88	·28	·50	·90	·70	·10	·65	·95
	·84	·30	·50	·87	·70	·10	·67	·96
	·85	·27	·50	·93	·70	·09	·70	·97
	·85	·28	·53	·95	·70	·10	·70	·97
	·84	·26	·55	·87	·70	·10	·61	·98
	·84	·24	·55	·90	·70	·10	·65	·99
	·84	·23	·55	·94	·70	·10	·62	1·00
	·85	·25	·55	·88	·70	·10	·61	1·05
	·85	·27	·55	·90	·68	·10	·61	1·00
Corresponding Mean Observed Times by	<i>h m s</i> 4 28 11	<i>h m s</i> 4 31 5	<i>h m s</i> 4 29 31	<i>h m s</i> 4 32 54	<i>h m s</i> 5 49 11	<i>h m s</i> 5 51 31	<i>h m s</i> 5 50 33	<i>h m s</i> 5 53 47
	<i>s</i> +0·856	<i>s</i> +0·272	<i>s</i> +0·533	<i>s</i> +0·885	<i>s</i> +0·700	<i>s</i> +0·100	<i>s</i> +0·629	<i>s</i> +0·979
E Clock	<i>h m s</i> 3 59 47	<i>h m s</i> 4 2 45	<i>h m s</i> 4 1 11	<i>h m s</i> 4 4 32	<i>h m s</i> 5 20 47	<i>h m s</i> 5 23 11	<i>h m s</i> 5 22 13	<i>h m s</i> 5 25 25
	<i>s</i> +0·856	<i>s</i> +0·272	<i>s</i> +0·533	<i>s</i> +0·885	<i>s</i> +0·700	<i>s</i> +0·100	<i>s</i> +0·629	<i>s</i> +0·979
W Clock	<i>h m s</i> 3 59 47	<i>h m s</i> 4 2 45	<i>h m s</i> 4 1 11	<i>h m s</i> 4 4 32	<i>h m s</i> 5 20 47	<i>h m s</i> 5 23 11	<i>h m s</i> 5 22 13	<i>h m s</i> 5 25 25
	<i>s</i> +0·856	<i>s</i> +0·272	<i>s</i> +0·533	<i>s</i> +0·885	<i>s</i> +0·700	<i>s</i> +0·100	<i>s</i> +0·629	<i>s</i> +0·979
Difference	<i>m s</i> 28 23·144	<i>m s</i> 28 19·728	<i>m s</i> 28 20·533	<i>m s</i> 28 22·885	<i>m s</i> 28 23·300	<i>m s</i> 28 19·900	<i>m s</i> 28 20·629	<i>m s</i> 28 22·979

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q +	Q -	Q -	Q +	Q +	Q -	Q -	Q +
1882 December 8	s 0'40	s 1'01	s 0'48	s 0'80	s 0'20	s 0'80	s 0'54	s 0'87
	'35	0'95	'45	'81	'23	'80	'54	'86
	'35	'95	'50	'77	'23	'80	'52	'86
	'35	'95	'45	'79	'27	'80	'52	'87
	'40	'93	'49	'74	'25	'80	'53	'84
	'39	'92	'44	'76	'25	'80	'53	'85
	'40	'93	'45	'74	'25	'80	'52	'85
	'41	'98	'42	'80	'25	'83	'52	'83
	'42	'95	'47	'80	'25	'80	'50	'85
	'43	'94	'41	'79	'25	'80	'55	'83
	'37	'97	'40	'77	'27	'80	'54	'84
	'37	'93	'43	'77	'24	'82	'54	'87
	'37	'96	'40	'80	'25	'81	'55	'87
	'36	'94	'40	'76	'24	'81	'54	'85
	'37	'95	'50	'77	'23	'80	'50	'85
	'37	'96	'44	'84	'24	'80	'54	'86
	'40	'95	'49	'75	'25	'80	'54	'84
	'40	'97	'50	'75	'25	'80	'54	'86
	'38	'97	'49	'78	'25	'81	'52	'89
	'39	'96	'45	'78	'25	'80	'50	'85
Corresponding Mean Observed Times by	h m s 4 28 33	h m s 4 31 37	h m s 4 29 33	h m s 4 33 10	h m s 5 48 50	h m s 5 51 37	h m s 5 50 11	h m s 5 53 11
	s +0'384	s +0'954	s +0'453	s +0'779	s +0'245	s +0'804	s +0'529	s +0'855
Difference	m s 28 21'616	m s 28 25'046	m s 28 22'453	m s 28 24'779	m s 28 21'755	m s 28 25'196	m s 28 22'529	m s 28 24'855

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1882 December 9	$s$ 0.35 '38 '36 '33 '36 '36 '38 '34 '37 '34 '35 '33 '34 '32 '36 '35 '33 '32 '37 '41	$s$ 0.91 '93 '92 '92 '95 '95 '95 '91 '94 '95 '90 '97 '95 '92 '95 '90 '90 '90 '91 '92	$s$ 0.42 '41 '43 '45 '48 '42 '40 '46 '50 '44 '49 '50 '50 '50 '45 '45 '40 '43 '40 '42	$s$ 0.80 '77 '79 '80 '77 '86 '85 '80 '80 '82 '75 '84 '77 '80 '74 '77 '80 '75 '76 '80	$s$ 0.22 '21 '23 '24 '23 '23 '21 '23 '22 '23 '21 '24 '24 '20 '20 '24 '24 '21 '20 '20	$s$ 0.80 '80 '80 '80 '82 '82 '82 '80 '80 '81 '80 '79 '79 '80 '79 '78 '80 '79 '80	$s$ 0.56 '53 '55 '55 '54 '55 '55 '53 '52 '53 '55 '51 '54 '54 '60 '50 '59 '50 '48 '57	$s$ 0.90 '94 '89 '93 '95 '97 '92 '90 '91 '90 '90 '92 '93 '92 '92 '91 '95 '93 '92 '95
Corresponding Mean Observed Times by	E Clock $h\ m\ s$ 4 28 35	$h\ m\ s$ 4 31 11	$h\ m\ s$ 4 29 35 $s$ +0.448	$h\ m\ s$ 4 33 10 $s$ +0.792	$h\ m\ s$ 5 48 59	$h\ m\ s$ 5 52 11	$h\ m\ s$ 5 50 10 $s$ +0.540	$h\ m\ s$ 5 53 10 $s$ +0.923
	W Clock $h\ m\ s$ 4 0 11 $s$ +0.353	$h\ m\ s$ 4 2 43 $s$ +0.928	$h\ m\ s$ 4 1 11	$h\ m\ s$ 4 4 44	$h\ m\ s$ 5 20 35 $s$ +0.222	$h\ m\ s$ 5 23 43 $s$ +0.801	$h\ m\ s$ 5 21 46	$h\ m\ s$ 5 24 44
Difference	$m\ s$ 28 23.647	$m\ s$ 28 27.072	$m\ s$ 28 24.448	$m\ s$ 28 26.792	$m\ s$ 28 23.778	$m\ s$ 28 27.199	$m\ s$ 28 24.540	$m\ s$ 28 26.923

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1882 December 11	<i>s</i> 0.50 .50 .50 .50 .50 .50 .50 .50 .50 .52 .50 .50 .48 .48 .50 .50 .50 .49 .49 .50	<i>s</i> 0.05 .05 .07 .07 .02 .03 .04 .09 .05 .00 .00 .05 .01 .01 .02 .04 .01 .02 .04 .00	<i>s</i> 0.25 .25 .28 .27 .30 .29 .30 .23 .30 .30 .28 .29 .28 .28 .29 .33 .29 .30 .25 .25	<i>s</i> 0.61 .63 .64 .60 .63 .61 .62 .64 .64 .66 .65 .66 .70 .64 .65 .70 .63 .65 .62 .63	<i>s</i> 0.32 .34 .33 .32 .30 .35 .30 .35 .37 .35 .33 .30 .33 .30 .30 .30 .30 .33 .33 .32	<i>s</i> 0.90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .90 .91 .90 .88 .90 .90 .90 .90 .90 .90	<i>s</i> 0.37 .38 .39 .38 .38 .40 .39 .40 .40 .39 .39 .40 .39 .40 .40 .39 .40 .41 .40 .40	<i>s</i> 0.75 .75 .73 .75 .75 .75 .75 .72 .75 .75 .75 .74 .76 .75 .74 .72 .71 .75 .74 .71
Corresponding Mean Observed Times by	E Clock <i>h m s</i> 4 27 11	<i>h m s</i> 4 31 11	<i>h m s</i> 4 29 58 <i>s</i> +0.281	<i>h m s</i> 4 32 41 <i>s</i> +0.641	<i>h m s</i> 5 48 11	<i>h m s</i> 5 51 11	<i>h m s</i> 5 49 11 <i>s</i> +0.393	<i>h m s</i> 5 50 41 <i>s</i> +0.740
	<i>h m s</i> 3 58 43 <i>s</i> +0.498	<i>h m s</i> 4 2 40 <i>s</i> +0.034	<i>h m s</i> 4 1 30	<i>h m s</i> 4 4 11	<i>h m s</i> 5 19 43 <i>s</i> +0.324	<i>h m s</i> 5 22 39 <i>s</i> +0.900	<i>h m s</i> 5 20 43	<i>h m s</i> 5 22 11
Difference	<i>m s</i> 28 27.502	<i>m s</i> 28 30.966	<i>m s</i> 28 28.281	<i>m s</i> 28 30.641	<i>m s</i> 28 27.676	<i>m s</i> 28 31.100	<i>m s</i> 28 28.393	<i>m s</i> 28 30.740

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q +	Q -	Q -	Q +	Q +	Q -	Q -	Q +
1882 December 21	s 0'77	s 0'45	s 0'56	s 0'40	s 0'75	s 0'43	s 0'53	s 0'43
	'77	'45	'58	'40	'76	'40	'50	'45
	'76	'45	'56	'44	'76	'41	'51	'44
	'76	'45	'57	'45	'77	'40	'53	'45
	'77	'46	'56	'45	'77	'42	'50	'46
	'77	'45	'55	'45	'78	'41	'50	'46
	'76	'43	'52	'45	'77	'43	'50	'46
	'77	'45	'51	'47	'78	'40	'50	'47
	'76	'43	'51	'46	'77	'40	'50	'45
	'75	'44	'51	'44	'75	'41	'50	'45
	'79	'42	'51	'44	'77	'41	'50	'45
	'80	'40	'50	'43	'77	'45	'50	'40
	'76	'44	'50	'43	'77	'44	'52	'38
	'78	'45	'53	'41	'78	'45	'50	'40
	'79	'44	'50	'41	'77	'45	'50	'40
	'79	'40	'50	'43	'78	'44	'50	'40
	'77	'45	'50	'42	'79	'43	'51	'39
	'77	'44	'50	'44	'77	'44	'53	'39
	'79	'44	'50	'45	'77	'44	'53	'42
	'79	'42	'50	'47	'79	'41	'55	'42
Corresponding Mean Observed Times by	E Clock h m s 4 58 4	h m s 4 58 11	h m s 4 59 46 s +0'524	h m s 5 1 11 s +0'437	h m s 5 49 32	h m s 5 50 35	h m s 5 46 54 s +0'511	h m s 5 47 49 s +0'429
	W Clock h m s 4 57 2 s +0'774	h m s 4 57 6 s +0'438	h m s 4 58 45	h m s 5 0 7	h m s 5 48 30 s +0'771	h m s 5 49 30 s +0'424	h m s 5 45 53	h m s 5 46 45
Difference	m s 1 1'226	m s 1 4'562	m s 1 1'524	m s 1 4'437	m s 1 1'229	m s 1 4'576	m s 1 1'511	m s 1 4'429

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1882 December 26	$s$ 0'91	$s$ 0'55	$s$ 0'45	$s$ 0'30	$s$ 0'90	$s$ 0'55	$s$ 0'43	$s$ 0'35
	'90	'56	'45	'30	'90	'55	'44	'35
	'90	'58	'43	'30	'90	'60	'45	'35
	'90	'56	'43	'30	'90	'56	'44	'35
	'88	'59	'44	'30	'91	'57	'45	'30
	'89	'56	'44	'30	'90	'55	'45	'30
	'90	'55	'44	'30	'90	'59	'44	'27
	'90	'55	'44	'33	'90	'57	'45	'27
	'90	'57	'45	'33	'90	'59	'45	'26
	'90	'56	'45	'34	'91	'58	'45	'29
	'90	'58	'45	'34	'90	'59	'43	'30
	'90	'57	'47	'34	'90	'57	'44	'30
	'90	'59	'45	'35	'90	'59	'40	'34
	'90	'56	'49	'35	'89	'57	'40	'30
	'90	'56	'47	'35	'90	'57	'40	'32
	'90	'59	'49	'30	'90	'58	'41	'32
	'89	'57	'47	'30	'90	'57	'40	'31
	'90	'57	'45	'28	'90	'56	'42	'32
	'90	'57	'44	'29	'90	'59	'40	'31
	'90	'58	'45	'30	'90	'55	'41	'30
Corresponding Mean Observed Times by	E Clock $h\ m\ s$ 4 59 0	$h\ m\ s$ 4 59 55	$h\ m\ s$ 5 1 39 $s$ +0'453	$h\ m\ s$ 5 2 52 $s$ +0'315	$h\ m\ s$ 5 43 55	$h\ m\ s$ 5 44 45	$h\ m\ s$ 5 46 40 $s$ +0'428	$h\ m\ s$ 5 47 52 $s$ +0'311
	W Clock $h\ m\ s$ 4 58 0 $s$ +0'899	$h\ m\ s$ 4 58 52 $s$ +0'569	$h\ m\ s$ 5 0 40	$h\ m\ s$ 5 1 50	$h\ m\ s$ 5 42 55 $s$ +0'901	$h\ m\ s$ 5 43 42 $s$ +0'573	$h\ m\ s$ 5 45 41	$h\ m\ s$ 5 46 50
Difference	$m\ s$ 0 59'101	$m\ s$ 1 2'431	$m\ s$ 0 59'453	$m\ s$ 1 2'315	$m\ s$ 0 59'099	$m\ s$ 1 2'427	$m\ s$ 0 59'428	$m\ s$ 1 2'311



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1882 December 27	$s$ 0.58	$s$ 0.24	$s$ 0.80	$s$ 0.65	$s$ 0.60	$s$ 0.25	$s$ 0.76	$s$ 0.60
	.58	.25	.80	.65	.60	.25	.78	.67
	.57	.22	.77	.65	.58	.26	.75	.65
	.59	.25	.78	.65	.60	.25	.75	.62
	.57	.25	.76	.65	.60	.25	.75	.60
	.59	.25	.77	.65	.60	.24	.75	.60
	.57	.25	.77	.65	.59	.22	.75	.60
	.58	.26	.80	.65	.59	.25	.75	.60
	.57	.24	.76	.64	.58	.24	.74	.59
	.59	.24	.76	.64	.60	.25	.73	.59
	.58	.25	.75	.65	.58	.24	.70	.60
	.59	.26	.75	.65	.60	.27	.71	.60
	.60	.25	.74	.65	.59	.26	.72	.60
	.60	.25	.75	.66	.60	.26	.71	.60
	.60	.23	.76	.66	.59	.26	.71	.63
	.59	.25	.77	.68	.60	.29	.72	.64
	.60	.24	.77	.69	.60	.27	.75	.65
	.60	.25	.78	.70	.60	.28	.75	.65
	.59	.25	.78	.69	.60	.26	.74	.60
	.60	.26	.79	.67	.60	.27	.75	.60
Corresponding Mean Observed Times by	$h\ m\ s$ 4 59 40	$h\ m\ s$ 5 0 50	$h\ m\ s$ 5 2 11	$h\ m\ s$ 5 3 26	$h\ m\ s$ 5 44 40	$h\ m\ s$ 5 45 40	$h\ m\ s$ 5 46 58	$h\ m\ s$ 5 47 51
	$s$ +0.587	$s$ +0.247	$s$ +0.771	$s$ +0.659	$s$ +0.595	$s$ +0.256	$s$ +0.739	$s$ +0.615
	$h\ m\ s$ 4 58 41	$h\ m\ s$ 4 59 48	$h\ m\ s$ 5 1 13	$h\ m\ s$ 5 2 25	$h\ m\ s$ 5 43 41	$h\ m\ s$ 5 44 38	$h\ m\ s$ 5 46 0	$h\ m\ s$ 5 46 50
	$s$ +0.587	$s$ +0.247			$s$ +0.595	$s$ +0.256		
Difference	$m\ s$ 0 58.413	$m\ s$ 1 1.753	$m\ s$ 0 58.771	$m\ s$ 1 1.659	$m\ s$ 0 58.405	$m\ s$ 1 1.744	$m\ s$ 0 58.739	$m\ s$ 1 1.615

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1882 December 28	$s$ 0'20	$s$ 0'87	$s$ 0'10	$s$ 1'00	$s$ 0'21	$s$ 0'83	$s$ 0'12	$s$ 0'00
	'20	'89	'10	1'01	'20	'80	'11	'00
	'19	'88	'10	1'01	'18	'83	'10	'01
	'19	'89	'10	1'00	'20	'87	'10	'00
	'20	'89	'11	1'01	'20	'86	'10	'00
	'20	'89	'12	1'00	'20	'86	'10	'00
	'20	'87	'16	1'01	'18	'85	'10	'00
	'20	'86	'15	1'00	'19	'84	'10	'00
	'19	'87	'14	1'01	'19	'84	'10	'00
	'19	'86	'12	1'01	'19	'85	'10	'00
	'19	'86	'15	1'02	'18	'87	'10	'03
	'19	'86	'11	1'03	'16	'87	'10	'02
	'19	'86	'10	1'03	'20	'85	'10	'01
	'20	'85	'10	1'00	'20	'88	'10	'00
	'20	'86	'11	1'00	'19	'89	'10	'00
	'20	'85	'10	0'99	'20	'89	'10	'00
	'19	'87	'10	1'00	'20	'86	'11	'00
	'19	'86	'10	1'00	'21	'87	'13	'00
	'18	'85	'10	1'00	'21	'87	'11	'00
	'18	'84	'13	1'00	'20	'89	'12	'00
Corresponding Mean Observed Times by	$h\ m\ s$ 5 0 11	$h\ m\ s$ 5 1 13	$h\ m\ s$ 5 3 48	$h\ m\ s$ 5 4 35	$h\ m\ s$ 5 43 56	$h\ m\ s$ 5 44 50	$h\ m\ s$ 5 46 59	$h\ m\ s$ 5 47 56
			$s$ +0'115	$s$ +1'007			$s$ +0'105	$s$ +0'004
	$h\ m\ s$ 4 59 13	$h\ m\ s$ 5 0 11	$h\ m\ s$ 5 2 50	$h\ m\ s$ 5 3 35	$h\ m\ s$ 5 42 58	$h\ m\ s$ 5 43 48	$h\ m\ s$ 5 46 1	$h\ m\ s$ 5 46 55
	$s$ +0'194	$s$ +0'867			$s$ +0'195	$s$ +0'859		
Difference	$m\ s$ 0 57'806	$m\ s$ 1 1'133	$m\ s$ 0 58'115	$m\ s$ 1 1'007	$m\ s$ 0 57'805	$m\ s$ 1 1'141	$m\ s$ 0 58'105	$m\ s$ 1 1'004

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +
1882 December 29	<i>s</i> 0·67	<i>s</i> 0·35	<i>s</i> 0·65	<i>s</i> 0·50	<i>s</i> 0·70	<i>s</i> 0·35	<i>s</i> 0·60	<i>s</i> 0·48
	·68	·37	·65	·49	·70	·35	·60	·48
	·66	·39	·65	·48	·70	·35	·61	·48
	·67	·40	·64	·50	·70	·36	·60	·50
	·67	·35	·65	·50	·70	·36	·60	·50
	·69	·35	·63	·50	·70	·37	·60	·50
	·68	·35	·62	·53	·70	·38	·60	·50
	·69	·34	·60	·52	·70	·36	·60	·50
	·67	·33	·60	·51	·70	·35	·60	·51
	·69	·34	·60	·52	·70	·36	·60	·51
	·70	·31	·62	·52	·70	·35	·60	·51
	·69	·35	·60	·51	·70	·35	·60	·50
	·68	·38	·63	·54	·70	·34	·60	·55
	·70	·35	·61	·54	·70	·35	·60	·56
	·68	·32	·63	·55	·70	·34	·60	·52
	·68	·31	·63	·55	·70	·34	·60	·50
	·67	·34	·64	·56	·70	·33	·59	·50
	·67	·34	·61	·54	·70	·34	·59	·50
	·67	·34	·60	·55	·70	·34	·57	·52
	·67	·35	·62	·52	·70	·34	·60	·55
Corresponding Mean Observed Times by	<i>h m s</i> 4 59 50	<i>h m s</i> 5 1 0	<i>h m s</i> 5 4 17 <i>s</i> +0·624	<i>h m s</i> 5 5 15 <i>s</i> +0·522	<i>h m s</i> 5 44 11	<i>h m s</i> 5 45 12	<i>h m s</i> 5 46 55 <i>s</i> +0·598	<i>h m s</i> 5 47 58 <i>s</i> +0·509
	<i>h m s</i> 4 58 52 <i>s</i> +0·679	<i>h m s</i> 4 59 59 <i>s</i> +0·348	<i>h m s</i> 5 3 20	<i>h m s</i> 5 4 15	<i>h m s</i> 5 43 13 <i>s</i> +0·700	<i>h m s</i> 5 44 11 <i>s</i> +0·351	<i>h m s</i> 5 45 58	<i>h m s</i> 5 46 58
Difference	<i>m s</i> 0 57·321	<i>m s</i> 1 0·652	<i>m s</i> 0 57·624	<i>m s</i> 1 0·522	<i>m s</i> 0 57·300	<i>m s</i> 1 0·649	<i>m s</i> 0 57·598	<i>m s</i> 1 0·509

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$
1883 January 2	$s$ 0.67	$s$ 0.35	$s$ 0.66	$s$ 0.55	$s$ 0.70	$s$ 0.36	$s$ 0.62	$s$ 0.54
	.67	.33	.65	.57	.70	.35	.64	.55
	.69	.36	.65	.60	.69	.34	.66	.55
	.68	.34	.68	.56	.70	.34	.67	.57
	.70	.35	.68	.54	.70	.34	.69	.55
	.69	.35	.69	.51	.70	.37	.66	.60
	.70	.35	.65	.54	.70	.34	.68	.55
	.68	.34	.64	.55	.70	.35	.63	.57
	.68	.35	.65	.55	.67	.34	.65	.58
	.65	.33	.67	.53	.69	.37	.64	.55
	.67	.35	.65	.54	.70	.35	.63	.55
	.66	.35	.65	.54	.70	.37	.62	.51
	.70	.39	.67	.54	.70	.34	.66	.50
	.67	.35	.67	.55	.70	.35	.66	.50
	.70	.38	.68	.51	.68	.35	.66	.50
	.69	.36	.69	.51	.70	.35	.64	.50
	.70	.38	.67	.55	.69	.33	.65	.52
	.68	.34	.69	.55	.70	.36	.63	.57
	.70	.38	.70	.51	.67	.37	.64	.55
	.69	.36	.70	.54	.70	.39	.62	.54
Corresponding Mean Observed Times by	$h\ m\ s$ 5 0 35	$h\ m\ s$ 5 1 35	$h\ m\ s$ 5 3 49	$h\ m\ s$ 5 4 49	$h\ m\ s$ 5 43 20	$h\ m\ s$ 5 44 30	$h\ m\ s$ 5 46 39	$h\ m\ s$ 5 47 44
	$s$ +0.684	$s$ +0.355	$s$ +0.670	$s$ +0.542	$s$ +0.695	$s$ +0.353	$s$ +0.648	$s$ +0.543
	$h\ m\ s$ 4 59 40	$h\ m\ s$ 5 0 37	$h\ m\ s$ 5 2 55	$h\ m\ s$ 5 3 52	$h\ m\ s$ 5 42 25	$h\ m\ s$ 5 43 32	$h\ m\ s$ 5 45 45	$h\ m\ s$ 5 46 47
	$s$ +0.684	$s$ +0.355			$s$ +0.695	$s$ +0.353		
Difference	$m\ s$ 0 54.316	$m\ s$ 0 57.645	$m\ s$ 0 54.670	$m\ s$ 0 57.542	$m\ s$ 0 54.305	$m\ s$ 0 57.647	$m\ s$ 0 54.648	$m\ s$ 0 57.543

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 January 12	s 0'95	s 0'85	s 0'55	s 0'10	s 0'90	s 0'77	s 0'66	s 0'20
	'95	'86	'55	'10	'90	'74	'65	'19
	'98	'85	'55	'07	'85	'74	'64	'20
	'95	'90	'57	'12	'90	'75	'66	'19
	'97	'87	'57	'10	'85	'76	'64	'18
	'91	'86	'56	'07	'90	'75	'62	'20
	'93	'86	'58	'06	'84	'74	'61	'20
	'91	'86	'59	'06	'87	'70	'64	'20
	1'00	'86	'55	'12	'89	'70	'64	'17
	1'00	'86	'59	'14	'90	'70	'62	'16
	0'90	'87	'53	'10	'85	'72	'65	'17
	'91	'87	'55	'09	'90	'80	'61	'15
	'97	'88	'54	'10	'85	'85	'67	'16
	'90	'87	'57	'10	'88	'78	'63	'15
	'95	'87	'57	'09	'90	'74	'62	'20
	'90	'87	'58	'10	'90	'75	'61	'16
	1'00	'86	'57	'20	'85	'85	'66	'20
	0'90	'85	'59	'10	'91	'70	'65	'15
	'90	'86	'59	'15	'85	'77	'65	'19
	'90	'87	'55	'10	'90	'73	'65	'15
Corresponding Mean Observed Times by	E Clock h m s 7 7 35	h m s 7 8 40	h m s 7 10 43 s +0'565	h m s 7 11 40 s +0'104	h m s 8 12 48	h m s 8 13 49	h m s 8 15 11 s +0'639	h m s 8 16 11 s +0'179
	W Clock h m s 6 54 31 s +0'939	h m s 6 55 39 s +0'865	h m s 6 57 40	h m s 6 58 40	h m s 7 59 44 s +0'880	h m s 8 0 48 s +0'752	h m s 8 2 8	h m s 8 3 11
Difference	m s 13 3'061	m s 13 0'135	m s 13 3'565	m s 13 0'104	m s 13 3'120	m s 13 0'248	m s 13 3'639	m s 13 0'179

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 January 18	<i>s</i> 0'40	<i>s</i> 0'35	<i>s</i> 0'03	<i>s</i> 0'59	<i>s</i> 0'30	<i>s</i> 0'20	<i>s</i> 0'45	<i>s</i> 0'48
	'39	'35	'03	'56	'25	'20	'46	'45
	'40	'38	'03	'60	'30	'20	'49	'50
	'30	'36	'05	'59	'28	'20	'46	'44
	'36	'38	'02	'59	'30	'25	'45	'50
	'30	'37	'00	'59	'25	'23	'46	'45
	'40	'39	'02	'59	'30	'24	'40	'44
	'32	'38	'00	'55	'22	'22	'41	'44
	'30	'44	'00	'59	'25	'25	'42	'44
	'39	'40	'00	'56	'26	'22	'41	'45
	'32	'39	'00	'60	'23	'27	'43	'45
	'32	'37	'00	'59	'21	'22	'49	'40
	'32	'38	'00	'58	'23	'22	'45	'45
	'30	'37	'02	'55	'24	'20	'46	'47
	'40	'36	'01	'60	'25	'22	'45	'50
	'30	'33	'02	'58	'24	'20	'40	'43
	'40	'34	'04	'60	'25	'20	'44	'50
	'35	'33	'01	'59	'25	'20	'45	'43
	'30	'34	'02	'60	'27	'20	'46	'43
	'30	'34	'02	'56	'25	'20	'41	'43
Corresponding Mean Observed Times by	<i>h m s</i> 7 7 25	<i>h m s</i> 7 8 35	<i>h m s</i> 7 9 31	<i>h m s</i> 7 10 27	<i>h m s</i> 8 12 35	<i>h m s</i> 8 13 35	<i>h m s</i> 8 14 38	<i>h m s</i> 8 15 29
	<i>s</i> +0'344	<i>s</i> +0'368	<i>s</i> +0'016	<i>s</i> +0'583	<i>s</i> +0'257	<i>s</i> +0'217	<i>s</i> +0'443	<i>s</i> +0'454
	<i>h m s</i> 6 54 19	<i>h m s</i> 6 55 32	<i>h m s</i> 6 56 25	<i>h m s</i> 6 57 25	<i>h m s</i> 7 59 29	<i>h m s</i> 8 0 32	<i>h m s</i> 8 1 34	<i>h m s</i> 8 2 25
	<i>s</i> +0'344	<i>s</i> +0'368			<i>s</i> +0'257	<i>s</i> +0'217		
Difference	<i>m s</i> 13 5'656	<i>m s</i> 13 2'632	<i>m s</i> 13 6'016	<i>m s</i> 13 2'583	<i>m s</i> 13 5'743	<i>m s</i> 13 2'783	<i>m s</i> 13 4'443*	<i>m s</i> 13 4'454*

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1883 January 14	s 0.72	s 0.70	s 0.02	s 1.00	s 0.65	s 0.57	s 0.14	s 0.10
	.72	.71	.00	1.00	.65	.57	.10	.09
	.70	.71	.05	1.00	.62	.56	.15	.10
	.70	.75	.00	1.00	.66	.60	.12	.11
	.70	.72	.05	1.00	.62	.59	.16	.10
	.70	.73	.00	1.00	.64	.57	.10	.10
	.70	.71	.06	1.00	.61	.60	.14	.10
	.70	.77	.04	1.00	.62	.60	.13	.10
	.68	.74	.05	1.00	.61	.64	.12	.10
	.68	.76	.01	1.00	.60	.63	.10	.10
	.65	.70	.03	1.00	.61	.69	.15	.10
	.68	.75	.00	1.00	.65	.65	.10	.10
	.67	.74	.07	0.98	.60	.68	.10	.10
	.68	.75	.00	1.00	.60	.69	.10	.10
	.66	.71	.05	1.00	.57	.68	.17	.15
	.65	.71	.00	1.01	.60	.70	.10	.10
	.70	.70	.07	1.00	.62	.69	.15	.10
	.70	.75	.00	1.00	.60	.70	.14	.10
	.67	.70	.03	1.00	.60	.65	.12	.15
	.70	.71	.00	1.00	.60	.65	.13	.11
Corresponding Mean Observed Times by	h m s 7 7 49	h m s 7 8 48	h m s 7 10 52	h m s 7 11 44	h m s 8 12 40	h m s 8 13 35	h m s 8 15 42	h m s 8 16 42
			s + 0.027	s + 1.000			s + 0.126	s + 0.106
	h m s 6 54 40	h m s 6 55 42	h m s 6 57 45	h m s 6 58 38	h m s 7 59 31	h m s 8 0 29	h m s 8 2 35	h m s 8 3 35
	s + 0.688	s + 0.726			s + 0.617	s + 0.636		
Difference	m s 13 8.312	m s 13 5.274	m s 13 7.027*	m s 13 7.000*	m s 13 8.383	m s 13 5.364	m s 13 7.126*	m s 13 7.106*

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 January 15	<i>s</i> 0'14	<i>s</i> 0'26	<i>s</i> 0'88	<i>s</i> 0'20	<i>s</i> 1'02	<i>s</i> 0'02	<i>s</i> 0'35	<i>s</i> 1'02
	'10	'20	'90	'20	1'00	'05	'35	1'02
	'05	'21	'86	'20	1'01	'03	'35	0'99
	'11	'18	'90	'23	1'00	'06	'36	1'02
	'06	'14	'89	'20	1'03	'04	'36	1'00
	'10	'19	'89	'20	1'00	'04	'35	1'00
	'10	'14	'90	'19	1'02	'03	'35	0'99
	'10	'14	'90	'20	1'00	'04	'37	'98
	'10	'15	'89	'19	1'00	'03	'36	1'00
	'09	'17	'90	'20	0'98	'05	'35	0'99
	'01	'18	'85	'19	1'00	'05	'35	1'00
	'14	'17	'90	'20	0'99	'09	'35	0'99
	'03	'17	'88	'19	1'00	'06	'40	'97
	'10	'17	'90	'20	0'97	'05	'35	'96
	'05	'19	'90	'19	1'00	'05	'41	'96
	'08	'17	'90	'20	0'99	'08	'32	'95
	'02	'16	'90	'20	1'01	'07	'31	'95
	'10	'14	'90	'20	0'99	'06	'34	'95
	'10	'12	'90	'18	1'00	'05	'30	'95
	'10	'16	'90	'19	0'99	'10	'30	'95
Corresponding Mean Observed Times by	<i>h m s</i> 7 7 48	<i>h m s</i> 7 8 47	<i>h m s</i> 7 10 49	<i>h m s</i> 7 11 51	<i>h m s</i> 8 12 35	<i>h m s</i> 8 13 50	<i>h m s</i> 8 15 22	<i>h m s</i> 8 16 18
	<i>s</i> +0'084	<i>s</i> +0'171	<i>s</i> +0'892	<i>s</i> +0'198	<i>s</i> +1'000	<i>s</i> +0'053	<i>s</i> +0'349	<i>s</i> +0'982
Difference	<i>m s</i> 13 10'916	<i>m s</i> 13 7'829	<i>m s</i> 13 7'892	<i>m s</i> 13 11'198	<i>m s</i> 13 11'000	<i>m s</i> 13 7'947	<i>m s</i> 13 11'349	<i>m s</i> 13 7'982



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1883 January 17	s 0'19	s 0'14	s 0'22	s 0'81	s 0'05	s 0'10	s 0'90	s 0'25
	'16	'16	'25	'80	'10	'10	'90	'29
	'17	'15	'25	'80	'10	'06	'91	'25
	'17	'21	'25	'80	'10	'14	'90	'29
	'17	'27	'25	'80	'09	'10	'91	'27
	'20	'20	'28	'80	'10	'11	'90	'27
	'16	'20	'25	'80	'09	'10	'90	'25
	'20	'22	'30	'80	'10	'10	'90	'29
	'16	'23	'24	'80	'08	'10	'90	'25
	'23	'25	'22	'80	'10	'10	'90	'29
	'23	'25	'33	'82	'10	'10	'92	'27
	'20	'30	'29	'80	'06	'13	'90	'29
	'17	'30	'23	'80	'08	'12	'90	'26
	'17	'30	'23	'79	'07	'15	'90	'26
	'19	'30	'20	'81	'05	'12	'91	'27
	'20	'22	'23	'81	'04	'12	'90	'29
	'20	'20	'20	'81	'05	'08	'95	'30
	'20	'25	'23	'81	'05	'05	'90	'26
	'25	'35	'20	'81	'07	'05	'92	'27
	'29	'20	'17	'80	'09	'05	'90	'29
Corresponding Mean Observed Times by	h m s 7 7 48	h m s 7 8 46	h m s 7 10 27	h m s 7 11 41	h m s 8 13 0	h m s 8 13 48	h m s 8 15 57	h m s 8 16 56
			s +0'241	s +0'804			s +0'906	s +0'273
	h m s 6 54 32	h m s 6 55 33	h m s 6 57 11	h m s 6 58 29	h m s 7 59 44	h m s 8 0 35	h m s 8 2 45	h m s 8 3 40
	s +0'196	s +0'235			s +0'079	s +0'099		
Difference	m s 13 15'804	m s 13 12'765	m s 13 16'241	m s 13 12'804	m s 13 15'921	m s 13 12'901	m s 13 12'906	m s 13 16'273

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 January 18	<i>s</i> 0.89	<i>s</i> 0.90	<i>s</i> 0.59	<i>s</i> 0.20	<i>s</i> 0.74	<i>s</i> 0.80	<i>s</i> 0.64	<i>s</i> 0.30
	.89	.89	.58	.20	.72	.80	.67	.30
	.85	.90	.55	.20	.70	.80	.67	.30
	.84	.90	.55	.20	.70	.80	.65	.31
	.90	.90	.60	.20	.70	.80	.70	.27
	.97	.89	.55	.20	.70	.80	.70	.30
	.85	.85	.56	.20	.70	.79	.69	.30
	.85	.89	.57	.20	.71	.80	.68	.33
	.99	.85	.57	.20	.72	.80	.65	.30
	.90	.90	.55	.20	.72	.80	.67	.29
	.80	.85	.58	.20	.71	.76	.66	.30
	1.00	.85	.55	.20	.71	.76	.70	.30
	0.89	.85	.60	.22	.70	.75	.69	.36
	.87	.85	.58	.20	.71	.75	.64	.38
	.86	.80	.60	.21	.70	.75	.67	.36
	.93	.85	.57	.20	.70	.77	.65	.30
	.89	.90	.58	.20	.70	.77	.67	.32
	.82	.86	.59	.19	.70	.78	.70	.30
	.86	.87	.58	.20	.72	.77	.65	.31
	.80	1.00	.59	.20	.70	.80	.70	.33
Corresponding Mean Observed Times by	<i>h m s</i> 7 7 46	<i>h m s</i> 7 8 50	<i>h m s</i> 7 10 11	<i>h m s</i> 7 11 11	<i>h m s</i> 8 13 0	<i>h m s</i> 8 13 50	<i>h m s</i> 8 15 11	<i>h m s</i> 8 16 11
	<i>s</i> +0.883	<i>s</i> +0.878	<i>s</i> +0.575	<i>s</i> +0.201	<i>s</i> +0.708	<i>s</i> +0.783	<i>s</i> +0.673	<i>s</i> +0.313
	<i>h m s</i> 6 54 27	<i>h m s</i> 6 55 34	<i>h m s</i> 6 56 53	<i>h m s</i> 6 57 56	<i>h m s</i> 7 59 41	<i>h m s</i> 8 0 34	<i>h m s</i> 8 1 53	<i>h m s</i> 8 2 56
	<i>s</i> +0.883	<i>s</i> +0.878			<i>s</i> +0.708	<i>s</i> +0.783		
Difference	<i>m s</i> 13 18.117	<i>m s</i> 13 15.122	<i>m s</i> 13 18.575	<i>m s</i> 13 15.201	<i>m s</i> 13 18.292	<i>m s</i> 13 15.217	<i>m s</i> 13 18.673	<i>m s</i> 13 15.313

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1888 January 23	s 0'83	s 0'98	s 0'47	s 0'10	s 0'90	s 0'99	s 0'00	s 0'35
	'78	'97	'51	'09	'90	1'02	'06	'38
	'74	'96	'46	'10	'90	1'00	'00	'35
	'79	'87	'49	'08	'90	1'08	'06	'38
	'76	'92	'46	'10	'85	1'00	'01	'35
	'79	'88	'50	'08	'84	1'06	'07	'37
	'77	'93	'47	'10	'90	1'01	'00	'35
	'80	'87	'51	'07	'90	1'05	'07	'38
	'79	'90	'46	'10	'89	0'99	'01	'35
	'80	'89	'49	'09	'90	1'02	'08	'38
	'78	'87	'46	'10	'90	0'99	'02	'34
	'80	'89	'49	'08	'88	1'02	'09	'40
	'80	'92	'45	'13	'89	0'99	'03	'35
	'82	'95	'49	'09	'85	1'00	'08	'40
	'81	'94	'46	'10	'92	0'98	'01	'35
	'80	'89	'50	'07	'90	1'00	'09	'38
	'80	'94	'47	'10	'99	0'98	'06	'34
	'78	'90	'51	'09	'90	1'00	'08	'38
	'80	'97	'47	'12	'94	0'98	'05	'35
	'83	'96	'51	'07	'93	1'02	'07	'39
Corresponding Mean Observed Times by	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock
	h m s 7 48 13	h m s 7 49 13	h m s 7 50 21	h m s 7 51 48	h m s 8 42 50	h m s 8 43 50	h m s 8 46 12	h m s 8 46 50
			s +0'482	s +0'093			s +0'047	s +0'366
	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock
	h m s 7 34 11	h m s 7 35 14	h m s 7 36 20	h m s 7 37 50	h m s 8 28 48	h m s 8 29 51	h m s 8 32 14	h m s 8 32 49
	s +0'794	s +0'920			s +0'899	s +1'009		
Difference	m s 14 1'206	m s 13 58'080	m s 14 1'482	m s 13 58'093	m s 14 1'101	m s 13 57'991	m s 13 58'047	m s 14 1'366

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 January 24	s 0'20	s 0'35	s 0'05	s 0'64	s 0'34	s 0'48	s 0'90	s 0'50
	'20	'35	'06	'68	'36	'50	'97	'53
	'20	'36	'04	'65	'34	'49	'90	'50
	'25	'34	'10	'70	'40	'50	'95	'54
	'22	'33	'04	'63	'31	'51	'90	'50
	'24	'33	'09	'70	'32	'50	'95	'57
	'20	'35	'05	'68	'30	'50	'90	'50
	'23	'36	'10	'70	'37	'49	'95	'58
	'20	'37	'02	'67	'30	'49	'90	'54
	'20	'36	'09	'69	'30	'49	'95	'55
	'17	'35	'09	'65	'30	'45	'90	'55
	'20	'32	'10	'70	'32	'46	'95	'59
	'16	'31	'08	'65	'39	'47	'91	'51
	'20	'34	'10	'70	'36	'50	'95	'58
	'20	'36	'04	'63	'31	'48	'90	'52
	'21	'31	'10	'70	'32	'50	'97	'58
	'20	'29	'03	'63	'31	'49	'90	'52
	'20	'30	'10	'70	'35	'49	'98	'56
	'20	'31	'03	'63	'35	'49	'90	'51
	'21	'30	'08	'70	'33	'48	'98	'56
Corresponding Mean Observed Times by	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock	E Clock
	h m s 7 48 50	h m s 7 49 50	h m s 7 50 43	h m s 7 51 43	h m s 8 42 50	h m s 8 43 50	h m s 8 45 42	h m s 8 46 39
			s +0'070	s +0'672			s +0'931	s +0'540
	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock	W Clock
	h m s 7 34 52	h m s 7 35 55	h m s 7 36 45	h m s 7 37 49	h m s 8 28 52	h m s 8 29 55	h m s 8 31 45	h m s 8 32 45
	s +0'205	s +0'335			s +0'334	s +0'488		
Difference	m s 13 57'795	m s 13 54'665	m s 13 58'070	m s 13 54'672	m s 13 57'666	m s 13 54'512	m s 13 57'931	m s 13 54'540

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1883 January 25	s 0'84 '80 '81 '80 '84 '81 '88 '82 '87 '83 '84 '80 '84 '80 '83 '80 '81 '80 '81 '79	s 0'98 1'00 0'94 '96 '93 '96 '94 '95 '93 '94 '94 '97 '94 '98 '95 '97 '96 '94 '95 '94	s 0'43 '49 '44 '48 '42 '49 '44 '46 '42 '46 '42 '47 '44 '46 '40 '46 '40 '47 '44 '46	s 0'05 '00 '05 '00 '04 '00 '04 '00 '05 '00 '06 '01 '05 '00 '05 '00 '05 '00 '04 '02	s 0'94 '90 '98 '94 '99 '94 1'00 0'93 '97 '90 '95 '90 '95 '94 '98 '90 1'00 0'90 '93 '88	s 0'06 '06 '07 '03 '06 '00 '06 '07 '06 '06 '07 '03 '07 '06 '06 '03 '05 '02 '06 '03	s 0'90 '94 '90 '94 '90 '92 '90 '93 '90 '92 '89 '93 '90 '91 '88 '90 '89 '90 '90	s 0'35 '37 '32 '38 '31 '38 '30 '36 '31 '37 '31 '35 '30 '37 '32 '37 '31 '36 '30 '37
Corresponding Mean Observed Times by	E Clock h m s 7 47 11	h m s 7 48 45	h m s 7 50 11 s +0'448	h m s 7 51 21 s +0'026	h m s 8 42 47	h m s 8 43 40	h m s 8 46 1 s +0'907	h m s 8 47 5 s +0'341
	W Clock h m s 7 33 16 s +0'821	h m s 7 34 53 s +0'954	h m s 7 36 17	h m s 7 37 30	h m s 8 28 52 s +0'941	h m s 8 29 49 s +0'051	h m s 8 32 11	h m s 8 33 11
Difference	m s 13 54'179	m s 13 51'046	m s 13 54'448	m s 13 51'026	m s 13 54'059	m s 13 50'949	m s 13 50'907	m s 13 54'341

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 January 26	<i>s</i> 0'43	<i>s</i> 0'44	<i>s</i> 0'50	<i>s</i> 0'92	<i>s</i> 0'44	<i>s</i> 0'58	<i>s</i> 0'80	<i>s</i> 0'40
	'40	'50	'56	'95	'45	'58	'79	'38
	'40	'46	'50	'91	'44	'60	'83	'40
	'40	'51	'55	'95	'49	'60	'80	'36
	'40	'45	'50	'90	'47	'60	'82	'40
	'40	'46	'55	'96	'50	'60	'79	'38
	'39	'44	'50	'93	'48	'60	'83	'40
	'40	'46	'55	'95	'47	'58	'80	'40
	'40	'44	'50	'90	'45	'59	'83	'43
	'40	'46	'55	'96	'49	'58	'80	'39
	'37	'46	'50	'92	'47	'57	'84	'41
	'38	'48	'52	'95	'50	'59	'81	'38
	'39	'47	'50	'92	'47	'60	'84	'42
	'37	'46	'53	'96	'50	'59	'80	'40
	'35	'49	'48	'90	'50	'59	'83	'43
	'39	'48	'52	'96	'50	'59	'80	'38
	'38	'47	'48	'90	'48	'63	'84	'41
	'35	'46	'52	'95	'46	'61	'80	'38
	'35	'45	'49	'90	'44	'63	'84	'42
	'35	'49	'51	'95	'45	'60	'80	'40
Corresponding Mean Observed Times by	<i>h m s</i> 7 48 20	<i>h m s</i> 7 50 20	<i>h m s</i> 7 51 58 <i>s</i> +0'516	<i>h m s</i> 7 52 49 <i>s</i> +0'932	<i>h m s</i> 8 42 30	<i>h m s</i> 8 44 11	<i>h m s</i> 8 45 40 <i>s</i> +0'815	<i>h m s</i> 8 46 37 <i>s</i> +0'399
	<i>h m s</i> 7 34 29 <i>s</i> +0'385	<i>h m s</i> 7 36 32 <i>s</i> +0'467	<i>h m s</i> 7 38 11	<i>h m s</i> 7 38 59	<i>h m s</i> 8 28 39 <i>s</i> +0'473	<i>h m s</i> 8 30 23 <i>s</i> +0'596	<i>h m s</i> 8 31 50	<i>h m s</i> 8 32 50
Difference	<i>m s</i> 13 50'615	<i>m s</i> 13 47'533	<i>m s</i> 13 47'516	<i>m s</i> 13 50'932	<i>m s</i> 13 50'527	<i>m s</i> 13 47'404	<i>m s</i> 13 50'815	<i>m s</i> 13 47'399

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 January 28	s 0'79 '84 '80 '85 '80 '89 '78 '80 '79 '84 '82 '83 '84 '87 '84 '79 '81 '80 '85 '84	s 0'95 '94 '99 '95 '97 '92 '94 '90 '94 '90 '92 '90 '94 '92 '97 '95 1'00 0'99 1'00 0'95	s 0'43 '50 '44 '49 '46 '50 '44 '50 '44 '50 '44 '42 '47 '44 '50 '44 '49 '40 '45	s 1'00 0'95 '96 '94 '99 '96 1'00 0'94 1'00 0'96 1'00 1'00 0'96 1'00 0'96 '96 1'00 '98 1'00 0'97	s 0'94 '95 '90 '91 '89 '94 '89 '91 '94 '90 1'00 '97 '95 1'00 0'94 '97 1'00 '92 '99 '91	s 0'05 '07 '05 '09 '07 '09 '04 '08 '09 '07 '07 '05 '10 '10 '10 '20 '12 '10 '10	s 0'31 '30 '33 '30 '35 '30 '36 '30 '35 '30 '35 '30 '35 '30 '35 '30 '36 '30 '34 '30	s 0'93 '91 '93 '90 '94 '92 '95 '90 '95 '90 '94 '90 '94 '90 '94 '90 '94 '90 '94 '90
Corresponding Mean Observed Times by	E Clock h m s 7 47 56	h m s 7 48 56	h m s 7 49 55 s +0'463	h m s 7 50 51 s +0'975	h m s 8 42 56	h m s 8 43 57	h m s 8 45 34 s +0'323	h m s 8 46 30 s +0'922
	W Clock h m s 7 34 11 s +0'824	h m s 7 35 14 s +0'947	h m s 7 36 11	h m s 7 37 11	h m s 8 29 11 s +0'937	h m s 8 30 16 s +0'086	h m s 8 31 50	h m s 8 32 50
Difference	m s 13 44'176	m s 13 41'053	m s 13 44'463	m s 13 40'975	m s 13 44'063	m s 13 40'914	m s 13 44'323	m s 13 40'922

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 January 29	s 0'44	s 0'57	s 0'85	s 0'40	s 0'60	s 0'64	s 0'72	s 0'31
	'49	'57	'80	'40	'55	'66	'73	'29
	'40	'57	'85	'44	'59	'64	'70	'35
	'44	'61	'80	'40	'54	'70	'71	'30
	'46	'62	'84	'44	'51	'67	'70	'33
	'45	'60	'80	'40	'51	'70	'73	'30
	'41	'58	'86	'44	'55	'70	'69	'32
	'45	'61	'81	'40	'60	'70	'74	'29
	'44	'65	'86	'45	'56	'73	'70	'33
	'45	'70	'80	'40	'56	'72	'74	'30
	'45	'59	'86	'45	'54	'69	'70	'33
	'46	'60	'80	'40	'59	'70	'72	'30
	'45	'57	'90	'45	'55	'66	'70	'31
	'50	'59	'80	'40	'62	'70	'77	'30
	'45	'59	'87	'44	'55	'70	'67	'30
	'46	'60	'80	'39	'60	'70	'77	'30
	'45	'57	'86	'49	'57	'66	'70	'30
	'47	'60	'80	'41	'56	'72	'76	'30
	'46	'60	'86	'45	'59	'70	'70	'31
	'48	'60	'80	'40	'55	'70	'76	'29
Corresponding Mean Observed Times by	E Clock h m s 7 47 56	h m s 7 48 56	h m s 7 50 31	h m s 7 51 28	h m s 8 42 56	h m s 8 43 56	h m s 8 45 30	h m s 8 46 30
	W Clock h m s 7 34 14	h m s 7 35 17	h m s 7 36 50	h m s 7 37 50	h m s 8 29 14	h m s 8 30 17	h m s 8 31 49	h m s 8 32 52
	s +0'453	s +0'600	s +0'831	s +0'423	s +0'565	s +0'690	s +0'721	s +0'308
Difference	m s 13 41'547	m s 13 38'400	m s 13 41'831	m s 13 38'423	m s 13 41'435	m s 13 38'310	m s 13 41'721	m s 13 38'308



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1883 January 30	$s$ 0.06	$s$ 0.13	$s$ 0.20	$s$ 0.80	$s$ 0.15	$s$ 0.28	$s$ 0.09	$s$ 0.65
	.06	.16	.20	.84	.16	.29	.13	.71
	.09	.12	.17	.80	.15	.20	.08	.68
	.06	.17	.22	.84	.15	.30	.10	.70
	.10	.12	.19	.80	.20	.20	.09	.69
	.09	.19	.21	.84	.20	.30	.13	.75
	.09	.16	.18	.80	.19	.24	.08	.69
	.06	.18	.22	.84	.15	.28	.10	.74
	.06	.17	.19	.78	.17	.26	.08	.70
	.04	.18	.21	.81	.14	.29	.10	.71
	.08	.16	.20	.79	.16	.27	.08	.68
	.05	.22	.22	.84	.19	.30	.12	.74
	.10	.17	.19	.79	.13	.30	.07	.70
	.02	.19	.22	.84	.17	.30	.13	.71
	.09	.18	.19	.79	.19	.31	.07	.68
	.06	.19	.23	.83	.15	.37	.10	.72
	.08	.14	.16	.80	.15	.30	.09	.70
	.07	.17	.22	.83	.15	.30	.11	.73
	.10	.15	.19	.80	.19	.40	.10	.66
	.10	.17	.20	.85	.19	.37	.13	.75
Corresponding Mean Observed Times by	E Clock $h\ m\ s$ 7 46 56	$h\ m\ s$ 7 48 56	$h\ m\ s$ 7 50 30	$h\ m\ s$ 7 51 30	$h\ m\ s$ 8 42 56	$h\ m\ s$ 8 43 56	$h\ m\ s$ 8 45 30	$h\ m\ s$ 8 46 30
			$s$ +0.201	$s$ +0.816			$s$ +0.099	$s$ +0.705
	W Clock $h\ m\ s$ 7 33 17	$h\ m\ s$ 7 35 20	$h\ m\ s$ 7 36 51	$h\ m\ s$ 7 37 55	$h\ m\ s$ 8 29 17	$h\ m\ s$ 8 30 20	$h\ m\ s$ 8 31 51	$h\ m\ s$ 8 32 55
	$s$ +0.073	$s$ +0.166			$s$ +0.167	$s$ +0.293		
Difference	$m\ s$ 13 38.927	$m\ s$ 13 35.834	$m\ s$ 13 39.201	$m\ s$ 13 35.816	$m\ s$ 13 38.833	$m\ s$ 13 35.707	$m\ s$ 13 39.099	$m\ s$ 13 35.705

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 February 8	<i>s</i> 0'20	<i>s</i> 0'60	<i>s</i> 0'80	<i>s</i> 0'58	<i>s</i> 0'50	<i>s</i> 0'89	<i>s</i> 0'50	<i>s</i> 0'30
	'24	'55	'90	'60	'48	'89	'61	'37
	'20	'60	'80	'59	'50	'83	'59	'25
	'26	'57	'88	'60	'45	'89	'63	'35
	'26	'59	'79	'55	'55	'80	'57	'27
	'27	'52	'88	'60	'50	'87	'60	'35
	'20	'58	'81	'55	'50	'81	'53	'29
	'28	'55	'90	'60	'50	'88	'60	'32
	'25	'58	'81	'55	'50	'84	'50	'30
	'27	'54	'90	'60	'50	'90	'60	'34
	'20	'60	'80	'59	'55	'81	'55	'30
	'25	'55	'91	'60	'53	'89	'60	'35
	'21	'61	'80	'59	'60	'80	'66	'30
	'30	'60	'90	'60	'55	'93	'60	'35
	'20	'60	'83	'55	'59	'90	'55	'30
	'26	'58	'90	'60	'50	'97	'60	'34
	'29	'59	'80	'54	'50	'89	'56	'30
	'24	'57	'89	'62	'50	'92	'60	'35
	'20	'61	'80	'59	'50	'89	'55	'30
	'25	'55	'88	'61	'50	'95	'60	'38
Corresponding Mean Observed Times by	<i>h m s</i> 9 24 15	<i>h m s</i> 9 25 12	<i>h m s</i> 9 26 29	<i>h m s</i> 9 27 30	<i>h m s</i> 10 38 30	<i>h m s</i> 10 39 31	<i>h m s</i> 10 40 43	<i>h m s</i> 10 41 40
			<i>s</i> +0'849	<i>s</i> +0'586			<i>s</i> +0'580	<i>s</i> +0'321
	<i>h m s</i> 9 0 11	<i>h m s</i> 9 1 11	<i>h m s</i> 9 2 26	<i>h m s</i> 9 3 30	<i>h m s</i> 10 14 26	<i>h m s</i> 10 15 30	<i>h m s</i> 10 16 40	<i>h m s</i> 10 17 40
	<i>s</i> +0'242	<i>s</i> +0'577			<i>s</i> +0'515	<i>s</i> +0'878		
Difference	<i>m s</i> 24 3'758	<i>m s</i> 24 0'423	<i>m s</i> 24 3'849	<i>m s</i> 24 0'586	<i>m s</i> 24 3'485	<i>m s</i> 24 0'122	<i>m s</i> 24 3'580	<i>m s</i> 24 0'321

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 9	s 0'40	s 0'70	s 0'70	s 0'36	s 0'70	s 1'06	s 0'35	s 0'03
	'40	'73	'65	'39	'65	1'05	'40	'10
	'44	'71	'70	'35	'72	1'02	'35	'10
	'45	'75	'65	'40	'66	1'05	'40	'11
	'40	'72	'70	'35	'70	1'02	'35	'08
	'43	'71	'64	'40	'65	1'04	'40	'10
	'40	'73	'69	'35	'70	1'07	'36	'10
	'42	'75	'62	'43	'63	1'04	'40	'12
	'49	'75	'69	'34	'75	1'00	'35	'10
	'45	'73	'65	'40	'70	1'02	'40	'10
	'45	'70	'70	'35	'75	1'00	'34	'10
	'44	'79	'65	'40	'71	1'00	'44	'10
	'45	'75	'70	'34	'71	0'99	'35	'10
	'39	'78	'64	'40	'72	1'00	'40	'13
	'49	'80	'70	'34	'70	1'01	'37	'10
	'40	'75	'65	'41	'74	1'01	'41	'10
	'44	'71	'70	'40	'70	1'00	'36	'05
	'40	'74	'65	'42	'70	1'00	'45	'10
	'44	'83	'70	'35	'70	1'01	'44	'10
	'45	'78	'65	'40	'73	1'07	'40	'10
Corresponding Mean Observed Times by	E Clock h m s 9 24 15	h m s 9 25 15	h m s 9 26 29	h m s 9 27 25	h m s 10 37 40	h m s 10 38 40	h m s 10 40 50	h m s 10 41 45
			s +0'672	s +0'379			s +0'386	s +0'096
	W Clock h m s 9 0 16	h m s 9 1 19	h m s 9 2 31	h m s 9 3 30	h m s 10 13 41	h m s 10 14 44	h m s 10 16 52	h m s 10 17 50
	s +0'432	s +0'746			s +0'701	s +1'023		
Difference	m s 23 58'568	m s 23 55'254	m s 23 58'672	m s 23 55'379	m s 23 58'299	m s 23 54'977	m s 23 58'386	m s 23 55'096

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 10	s 0'30	s 0'72	s 0'77	s 0'50	s 0'60	s 0'95	s 0'48	s 0'24
	'37	'70	'70	'44	'63	'86	'55	'20
	'40	'71	'79	'50	'69	'95	'47	'26
	'40	'67	'70	'43	'60	'90	'50	'20
	'34	'70	'77	'49	'55	'96	'46	'25
	'40	'68	'70	'45	'60	'88	'52	'20
	'35	'70	'80	'49	'60	'99	'47	'25
	'40	'69	'70	'44	'60	'90	'50	'20
	'35	'71	'80	'49	'60	1'00	'46	'25
	'40	'69	'70	'40	'61	0'90	'50	'20
	'35	'70	'80	'50	'60	1'00	'47	'25
	'40	'71	'70	'42	'65	1'00	'51	'20
	'35	'75	'80	'50	'61	1'04	'47	'22
	'40	'69	'70	'45	'62	0'95	'50	'18
	'34	'72	'80	'50	'59	1'00	'46	'24
	'40	'70	'70	'44	'60	0'92	'50	'20
	'33	'70	'79	'50	'56	1'00	'45	'24
	'39	'67	'70	'45	'60	0'95	'50	'20
	'33	'70	'80	'50	'53	1'00	'44	'25
	'35	'66	'70	'45	'61	0'91	'51	'20
Corresponding Mean Observed Times by	E Clock h m s 9 12 15	h m s 9 23 20	h m s 9 24 34 s +0'746	h m s 9 25 31 s +0'467	h m s 10 37 15	h m s 10 38 21	h m s 10 39 11 s +0'486	h m s 10 40 11 s +0'222
	W Clock h m s 8 58 21 s +0'368	h m s 8 59 29 s +0'699	h m s 9 0 41	h m s 9 1 41	h m s 10 13 21 s +0'603	h m s 10 14 30 s +0'953	h m s 10 15 18	h m s 10 16 21
Difference	m s 23 53'632	m s 23 50'301	m s 23 53'746	m s 23 50'467	m s 23 53'397	m s 23 50'047	m s 23 53'486	m s 23 50'222

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 11	s 0'90 '90 '90 '90 '92 '91 '95 '94 '91 '90 '90 '90 '90 '90 '93 '95 '95 '95 '90 '91	s 0'30 '22 '27 '20 '29 '25 '29 '25 '29 '24 '30 '20 '27 '24 '30 '25 '30 '20 '27 '20	s 0'20 '15 '20 '16 '19 '17 '20 '16 '20 '18 '20 '17 '20 '16 '20 '19 '20 '20 '20 '15	s 0'90 '98 '90 '98 '90 '98 '89 '98 '90 1'00 0'90 1'00 0'90 '95 '90 1'00 0'93 1'00 0'90 1'00	s 0'85 '85 '90 '83 '85 '84 '84 '81 '82 '90 '84 '81 '86 '82 '89 '86 '84 '80 '80 '80	s 0'85 '83 '87 '83 '75 '84 '88 '90 '80 '85 '80 '83 '81 '80 '79 '80 '79 '80 '80 '80	s 0'95 '99 '95 1'00 0'95 1'00 0'97 1'00 0'98 '99 1'00 1'00 0'99 1'00 0'96 1'00 0'96 1'00 0'99 1'00	s 0'72 '78 '67 '75 '65 '76 '65 '72 '77 '77 '70 '75 '68 '74 '70 '75 '69 '75 '70 '74
Corresponding Mean Observed Times by	E Clock h m s 9 27 11	h m s 9 28 12	h m s 9 29 24 s +0'184	h m s 9 30 24 s +0'945	h m s 10 36 30	h m s 10 37 25	h m s 10 39 24 s +0'984	h m s 10 40 25 s +0'722
	W Clock h m s 9 3 21 s +0'916	h m s 9 4 26 s +0'257	h m s 9 5 35	h m s 9 6 39	h m s 10 12 42 s +0'841	h m s 10 13 37 s +0'821	h m s 10 15 36	h m s 10 16 40
Difference	m s 23 49'084	m s 23 45'743	m s 23 49'184	m s 23 45'945	m s 23 47'159*	m s 23 47'179*	m s 23 48'984	m s 23 45'722

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1888 February 13	$s$ 0.40	$s$ 0.78	$s$ 0.81	$s$ 0.52	$s$ 0.56	$s$ 0.85	$s$ 0.65	$s$ 0.32
	.35	.70	.73	.49	.50	.80	.55	.28
	.40	.70	.80	.51	.55	.87	.65	.34
	.34	.69	.75	.49	.53	.83	.55	.30
	.40	.70	.81	.51	.60	.90	.60	.35
	.33	.65	.74	.49	.59	.87	.56	.30
	.40	.70	.84	.50	.57	.93	.65	.34
	.32	.66	.84	.49	.51	.87	.58	.30
	.36	.77	.85	.52	.55	.88	.60	.35
	.25	.69	.80	.46	.54	.84	.57	.30
	.40	.71	.80	.55	.57	.90	.65	.35
	.38	.66	.75	.50	.50	.84	.56	.30
	.43	.73	.80	.59	.53	.87	.60	.31
	.40	.70	.76	.50	.52	.82	.57	.25
	.40	.73	.80	.52	.55	.90	.60	.34
	.40	.67	.75	.47	.55	.80	.56	.29
	.40	.74	.85	.56	.55	.90	.60	.34
	.35	.65	.76	.50	.51	.83	.56	.30
	.39	.70	.82	.51	.55	.90	.61	.34
	.30	.70	.75	.50	.53	.84	.55	.30
Corresponding Mean Observed Times by	$h\ m\ s$ 9 24 22	$h\ m\ s$ 9 25 20	$h\ m\ s$ 9 26 34	$h\ m\ s$ 9 27 31	$h\ m\ s$ 10 36 20	$h\ m\ s$ 10 37 20	$h\ m\ s$ 10 38 34	$h\ m\ s$ 10 39 30
	$s$ +0.370	$s$ +0.702	$s$ +0.791	$s$ +0.509	$s$ +0.543	$s$ +0.862	$s$ +0.591	$s$ +0.315
Difference	$m\ s$ 23 41.630	$m\ s$ 23 38.298	$m\ s$ 23 41.791	$m\ s$ 23 38.509	$m\ s$ 23 41.457	$m\ s$ 23 38.138	$m\ s$ 23 41.591	$m\ s$ 23 38.315

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At E		At W	
	Q -	Q +	Q +	Q -	Q -	Q +	Q -	Q +
1883 February 14	s 0'95 1'00 0'90 1'00 0'90 1'00 1'00 1'00 1'00 0'95 '94 1'01 0'98 1'00 0'95 1'00 0'91 1'00 0'90 1'05	s 0'30 '28 '30 '26 '30 '25 '30 '29 '30 '28 '30 '28 '30 '26 '35 '30 '37 '30 '30 '30	s 0'10 '15 '05 '15 '10 '15 '10 '18 '10 '20 '10 '18 '12 '15 '10 '19 '12 '19 '10 '15	s 0'85 '82 '86 '82 '94 '83 '85 '88 '85 '84 '89 '82 '86 '84 '85 '80 '85 '83 '90 '90	s 0'75 '70 '78 '74 '70 '68 '70 '68 '74 '70 '70 '68 '70 '67 '71 '65 '70 '69 '68 '67	s 0'90 1'00 0'95 '97 '89 '97 '90 1'00 0'90 '99 '90 '97 '88 '98 '90 '99 '91 1'00 0'90 1'00	s 0'12 '20 '08 '11 '15 '16 '09 '13 '05 '20 '18 '20 '14 '20 '20 '20 '10 '12 '09 '15	s 0'50 '50 '55 '55 '55 '55 '50 '57 '55 '53 '49 '53 '50 '50 '50 '50 '45 '50 '50 '51
Corresponding Mean Observed Times by	E Clock h m s 9 23 31	h m s 9 24 30	h m s 9 26 26 s +0'134	h m s 9 27 11 s +0'854	h m s 10 38 59 s +0'701	h m s 10 40 11 s +0'945	h m s 10 42 13	h m s 10 43 11
	W Clock h m s 8 59 52 s +0'972	h m s 9 0 55 s +0'296	h m s 9 2 48	h m s 9 3 37	h m s 10 15 25	h m s 10 16 34	h m s 10 18 35 s +0'144	h m s 10 19 36 s +0'517
Difference	m s 23 38'028	m s 23 34'704	m s 23 38'134	m s 23 34'854	m s 23 34'701	m s 23 37'945	m s 23 37'856	m s 23 34'483

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 22	s 0'40	s 0'77	s 0'73	s 0'50	s 0'15	s 0'60	s 1'00	s 0'70
	'40	'80	'80	'52	'19	'60	1'00	'77
	'34	'80	'78	'50	'17	'50	0'95	'70
	'30	'80	'80	'55	'20	'50	1'00	'71
	'30	'80	'77	'50	'20	'50	0'95	'70
	'30	'77	'80	'55	'17	'48	1'00	'71
	'30	'80	'77	'50	'20	'50	0'95	'70
	'30	'75	'76	'55	'19	'55	1'00	'75
	'29	'67	'80	'50	'20	'55	0'95	'71
	'26	'67	'75	'55	'15	'55	1'00	'72
	'29	'67	'83	'50	'18	'54	0'95	'76
	'30	'69	'76	'54	'17	'53	1'00	'71
	'30	'75	'81	'50	'19	'50	0'95	'70
	'37	'71	'74	'54	'16	'52	1'00	'73
	'40	'70	'80	'50	'14	'49	0'95	'70
	'35	'71	'75	'54	'19	'50	1'00	'72
	'35	'67	'80	'50	'20	'50	0'92	'70
	'34	'71	'75	'54	'19	'50	'97	'71
	'40	'68	'80	'50	'17	'54	'93	'70
	'36	'68	'80	'54	'15	'55	'99	'72
Corresponding Mean Observed Times by	h m s 9 43 32	h m s 9 44 40	h m s 9 46 49	h m s 9 47 54	h m s 11 0 30	h m s 11 1 40	h m s 11 3 1	h m s 11 4 8
			s +0'780	s +0'521			s +0'973	s +0'716
	h m s 9 9 45	h m s 9 10 56	h m s 9 13 3	h m s 9 14 11	h m s 10 26 43	h m s 10 27 56	h m s 10 29 15	h m s 10 30 25
	s +0'333	s +0'730			s +0'178	s +0'525		
Difference	m s 33 46'667	m s 33 43'270	m s 33 46'780	m s 33 43'521	m s 33 46'822	m s 33 43'475	m s 33 46'973	m s 33 43'716



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 23	s 0'80 '85 '78 '83 '90 '90 '80 '80 '81 '89 '80 '81 '83 '90 '80 '89 '80 '90 '84 '80	s 0'85 '75 '83 '83 '85 '80 '87 '85 '85 '87 '85 '85 '95 '90 '90 '87 '90 '84 '85 '85	s 0'99 '05 '00 '00 '00 '00 '02 '99 '00 '00 '97 '98 '94 '00 '95 '00 '95 '00 '95 '00	s 0'70 '71 '68 '71 '70 '70 '70 '71 '68 '71 '68 '71 '69 '70 '70 '72 '69 '71 '71 '73	s 0'66 '66 '68 '68 '68 '67 '73 '67 '69 '70 '62 '69 '62 '70 '68 '70 '67 '69 '65 '70	s 0'70 '67 '75 '74 '70 '67 '70 '65 '65 '65 '65 '70 '66 '67 '70 '71 '66 '70	s 0'13 '20 '10 '17 '11 '20 '11 '16 '15 '20 '13 '19 '10 '16 '13 '16 '10 '14 '13 '19	s 0'90 '94 '90 '94 '90 '94 '89 '95 '89 '92 '88 '90 '88 '93 '90 '91 '85 '91 '87 '94
Corresponding Mean Observed Times by	E Clock h m s 9 44 20	h m s 9 45 45	h m s 9 47 26	h m s 9 48 23	h m s 11 0 36	h m s 11 1 17	h m s 11 3 1	h m s 11 3 57
	W Clock h m s 9 10 31	h m s 9 11 56	h m s 9 13 37	h m s 9 14 37	h m s 10 26 47	h m s 10 27 28	h m s 10 29 11	h m s 10 30 11
Difference	m s 33 48'163*	m s 33 48'147*	m s 33 49'990	m s 33 46'702	m s 33 48'323*	m s 33 48'316*	m s 33 50'148	m s 33 46'907

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 February 24	s 0'81	s 0'89	s 1'00	s 0'75	s 0'95	s 0'30	s 0'16	s 0'90
	'90	'83	0'97	'69	'95	'30	'16	'89
	'80	'87	1'00	'70	'92	'30	'20	'90
	'85	'87	0'98	'70	'97	'30	'15	'87
	'84	'83	1'00	'70	'91	'36	'17	'90
	'90	'80	0'99	'68	'95	'30	'14	'85
	'96	'90	1'01	'70	'99	'34	'19	'91
	'90	'86	0'99	'67	'93	'31	'15	'90
	'80	'85	1'00	'71	'93	'39	'20	'90
	'83	'83	0'99	'70	1'00	'39	'14	'88
	'84	'89	1'00	'71	0'90	'39	'20	'90
	'81	'91	0'98	'70	'95	'40	'15	'88
	'88	'85	1'00	'70	'83	'40	'19	'91
	'80	'84	0'97	'69	'90	'41	'13	'89
	'77	'85	1'00	'71	'89	'40	'17	'91
	'80	'87	0'97	'70	'90	'43	'14	'89
	'74	'85	1'03	'72	'90	'44	'17	'91
	'88	'90	0'99	'70	'91	'47	'14	'90
	'84	'85	1'00	'73	'86	'50	'19	'91
	'80	'90	0'99	'70	'91	'48	'15	'90
Corresponding Mean Observed Times by	E Clock h m s 9 43 39	h m s 9 44 54	h m s 9 46 32	h m s 9 47 29	h m s 11 0 33	h m s 11 2 1	h m s 11 3 43	h m s 11 4 39
	s +0'838	s +0'862	s +0'993	s +0'703	s +0'923	s +0'381	s +0'165	s +0'895
	W Clock h m s 9 9 47	h m s 9 11 2	h m s 9 12 40	h m s 9 13 40	h m s 10 26 39	h m s 10 28 11	h m s 10 29 50	h m s 10 30 50
	s +0'838	s +0'862			s +0'923	s +0'381		
Difference	m s 33 51'162*	m s 33 51'138*	m s 33 52'993	m s 33 49'703	m s 33 53'077	m s 33 49'619	m s 33 53'165	m s 33 49'895

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1883 February 28	$s$ 0'11	$s$ 0'10	$s$ 0'70	$s$ 0'48	$s$ 0'90	$s$ 0'90	$s$ 0'90	$s$ 0'62
	'19	'10	'75	'49	'90	'95	'91	'61
	'11	'10	'70	'45	'90	'94	'90	'64
	'16	'10	'73	'45	'90	'92	'90	'65
	'15	'15	'72	'46	'95	'92	'92	'65
	'14	'10	'71	'48	'95	'90	'90	'66
	'15	'08	'71	'47	'90	'89	'91	'62
	'15	'08	'70	'49	'99	'90	'92	'61
	'10	'10	'73	'48	'96	'95	'91	'62
	'14	'10	'70	'45	'92	'92	'94	'65
	'13	'11	'72	'48	'94	'94	'90	'64
	'11	'10	'73	'48	'98	'88	'90	'67
	'09	'10	'73	'45	'90	'93	'90	'66
	'10	'11	'75	'47	'98	'95	'90	'63
	'14	'15	'74	'47	'87	'91	'90	'65
	'15	'10	'74	'48	'90	'90	'90	'65
	'14	'15	'73	'49	'95	'86	'90	'65
	'10	'16	'74	'46	'95	'96	'90	'64
	'10	'13	'74	'48	'85	'95	'90	'65
	'10	'10	'74	'47	'95	'86	'90	'65
Corresponding Mean Observed Times by	E Clock $h\ m\ s$ 9 43 50	$h\ m\ s$ 9 45 0	$h\ m\ s$ 9 46 54	$h\ m\ s$ 9 48 5	$h\ m\ s$ 10 59 55	$h\ m\ s$ 11 1 11	$h\ m\ s$ 11 2 34	$h\ m\ s$ 11 3 34
	$s$ +0'128	$s$ +0'111	$s$ +0'726	$s$ +0'472	$s$ +0'927	$s$ +0'917	$s$ +0'906	$s$ +0'641
	$h\ m\ s$ 9 9 43	$h\ m\ s$ 9 10 53	$h\ m\ s$ 9 12 46	$h\ m\ s$ 9 14 0	$h\ m\ s$ 10 25 47	$h\ m\ s$ 10 27 3	$h\ m\ s$ 10 28 26	$h\ m\ s$ 10 29 29
	$s$ +0'128	$s$ +0'111			$s$ +0'927	$s$ +0'917		
Difference	$m\ s$ 34 6'872*	$m\ s$ 34 6'889*	$m\ s$ 34 8'726	$m\ s$ 34 5'472	$m\ s$ 34 7'073*	$m\ s$ 34 7'083*	$m\ s$ 34 8'906	$m\ s$ 34 5'641

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 March 2	<i>s</i> 0·82	<i>s</i> 0·82	<i>s</i> 1·00	<i>s</i> 0·70	<i>s</i> 0·66	<i>s</i> 0·70	<i>s</i> 0·11	<i>s</i> 0·89
	·86	·84	0·98	·72	·60	·70	·12	·88
	·87	·85	·99	·70	·65	·66	·10	·90
	·80	·80	·97	·71	·62	·70	·11	·88
	·79	·85	1·00	·71	·68	·66	·10	·88
	·83	·82	1·00	·70	·61	·67	·10	·85
	·79	·81	0·97	·70	·60	·70	·10	·88
	·79	·80	1·00	·70	·59	·69	·10	·86
	·78	·80	0·98	·70	·70	·70	·10	·86
	·76	·80	·98	·70	·65	·67	·10	·88
	·80	·80	·98	·70	·69	·70	·10	·88
	·80	·81	·99	·71	·62	·67	·12	·90
	·80	·80	·99	·70	·65	·70	·12	·88
	·82	·82	1·00	·70	·66	·69	·12	·90
	·80	·80	0·97	·71	·65	·69	·11	·90
	·80	·80	1·00	·70	·69	·65	·12	·89
	·80	·84	1·00	·70	·65	·66	·13	·89
	·76	·85	0·97	·70	·69	·70	·12	·89
	·80	·84	·96	·71	·64	·63	·14	·85
	·79	·83	·97	·71	·70	·70	·13	·86
Corresponding Mean Observed Times by	<i>h m s</i> 9 43 50	<i>h m s</i> 9 44 56	<i>h m s</i> 9 46 34	<i>h m s</i> 9 47 34	<i>h m s</i> 11 0 30	<i>h m s</i> 11 1 37	<i>h m s</i> 11 2 59	<i>h m s</i> 11 3 56
	<i>s</i> +0·803	<i>s</i> +0·819	<i>s</i> +0·985	<i>s</i> +0·704	<i>s</i> +0·650	<i>s</i> +0·682	<i>s</i> +0·113	<i>s</i> +0·880
Difference	<i>m s</i> 34 13·197*	<i>m s</i> 34 13·181*	<i>m s</i> 34 14·985	<i>m s</i> 34 11·704	<i>m s</i> 34 13·350*	<i>m s</i> 34 13·318*	<i>m s</i> 34 15·113	<i>m s</i> 34 11·880

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 3	s 1'01	s 0'39	s 0'15	s 0'84	s 0'80	s 0'21	s 0'31	s 0'08
	1'00	'44	'12	'85	'80	'17	'31	'09
	1'06	'37	'15	'89	'80	'20	'30	'09
	1'00	'37	'15	'86	'80	'12	'30	'08
	1'00	'39	'14	'88	'80	'18	'31	'09
	1'02	'40	'14	'88	'83	'10	'31	'07
	1'00	'39	'15	'88	'81	'15	'31	'10
	0'95	'40	'15	'87	'80	'20	'32	'09
	'99	'37	'15	'87	'80	'12	'32	'09
	'95	'39	'17	'86	'79	'20	'30	'06
	'93	'36	'16	'85	'80	'15	'33	'07
	'95	'45	'14	'85	'79	'15	'31	'07
	1'05	'38	'15	'85	'80	'20	'31	'07
	0'97	'33	'14	'85	'80	'18	'31	'05
	'97	'30	'13	'85	'84	'20	'30	'08
	1'00	'32	'15	'85	'80	'20	'30	'06
	1'00	'30	'15	'86	'81	'19	'30	'06
	1'03	'36	'15	'86	'90	'16	'30	'09
	1'00	'27	'13	'85	'81	'17	'31	'08
	1'00	'27	'11	'85	'90	'17	'30	'09
Corresponding Mean Observed Times by	E Clock h m s 9 43 45	h m s 9 45 11	h m s 9 46 23 s +0'144	h m s 9 47 25 s +0'860	h m s 10 59 54	h m s 11 1 9	h m s 11 2 34 s +0'308	h m s 11 3 35 s +0'078
	W Clock h m s 9 9 26 s +0'994	h m s 9 10 56 s +0'363	h m s 9 12 5	h m s 9 13 11	h m s 10 25 35 s +0'814	h m s 10 26 54 s +0'171	h m s 10 28 16	h m s 10 29 20
Difference	m s 34 18'006	m s 34 14'637	m s 34 18'144	m s 34 14'860	m s 34 18'186	m s 34 14'829	m s 34 18'308	m s 34 15'078

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At E		At W	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> -	<i>Q</i> +
1883 March 14	<i>s</i> 0'95	<i>s</i> 1'00	<i>s</i> 0'54	<i>s</i> 0'76	<i>s</i> 0'12	<i>s</i> 0'90	<i>s</i> 0'53	<i>s</i> 0'59
	'95	0'95	'55	'76	'15	'90	'56	'55
	'95	'95	'55	'78	'14	'87	'52	'55
	'98	'97	'56	'76	'13	'87	'58	'58
	'95	'95	'55	'76	'13	'88	'53	'55
	'96	'97	'55	'76	'12	'87	'55	'54
	'97	'96	'54	'75	'12	'89	'50	'53
	'95	'95	'56	'77	'13	'90	'55	'53
	'98	'95	'54	'76	'15	'90	'50	'50
	'97	'97	'54	'75	'14	'90	'55	'60
	'95	'97	'53	'75	'12	'90	'50	'59
	'99	'96	'54	'77	'15	'90	'54	'58
	'97	'95	'54	'76	'14	'90	'56	'53
	'99	'97	'55	'76	'13	'91	'54	'55
	'95	'94	'52	'75	'12	'90	'58	'56
	1'00	'98	'52	'75	'14	'90	'53	'55
	0'97	'97	'53	'74	'13	'90	'57	'54
	'97	'99	'54	'75	'14	'91	'55	'60
	'95	'97	'55	'75	'13	'90	'59	'55
	'95	'98	'55	'74	'13	'90	'56	'55
Corresponding Mean Observed Times by	<i>h m s</i> 10 32 11	<i>h m s</i> 10 33 19	<i>h m s</i> 10 35 21	<i>h m s</i> 10 36 18	<i>h m s</i> 11 42 3	<i>h m s</i> 11 42 40	<i>h m s</i> 11 45 11	<i>h m s</i> 11 46 11
	<i>s</i> +0'965	<i>s</i> +0'965	<i>s</i> +0'543	<i>s</i> +0'757	<i>s</i> +0'133	<i>s</i> +0'895	<i>s</i> +0'545	<i>s</i> +0'556
Difference	<i>m s</i> 9 9'035*	<i>m s</i> 9 9'035*	<i>m s</i> 9 10'543	<i>m s</i> 9 7'757	<i>m s</i> 9 8'133	<i>m s</i> 9 10'895	<i>m s</i> 9 9'455*	<i>m s</i> 9 9'444*

\* Owing to Irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1888 March 15	s 0'25	s 0'30	s 0'20	s 0'45	s 0'94	s 0'95	s 0'55	s 0'79
	'29	'29	'20	'44	'95	'95	'54	'75
	'25	'29	'20	'45	'91	'95	'55	'79
	'28	'29	'20	'44	'95	'95	'54	'77
	'29	'30	'20	'44	'92	'96	'55	'79
	'30	'30	'20	'44	'96	'95	'55	'79
	'25	'30	'20	'44	'94	'95	'54	'80
	'29	'30	'20	'45	'92	'95	'55	'77
	'29	'30	'20	'45	'90	'95	'55	'79
	'30	'30	'19	'44	'96	'96	'55	'79
	'30	'31	'20	'45	'96	'95	'55	'77
	'30	'30	'20	'45	'95	'93	'55	'79
	'29	'31	'20	'45	'92	'95	'55	'80
	'29	'30	'20	'45	'98	'95	'56	'79
	'30	'30	'20	'44	'90	'95	'56	'79
	'29	'30	'19	'44	'95	'95	'56	'78
	'30	'30	'20	'45	'93	'95	'56	'78
	'30	'29	'20	'41	'93	'95	'54	'79
	'30	'30	'20	'44	'93	'94	'55	'79
	'32	'30	'20	'45	'90	'95	'55	'80
Corresponding Mean Observed Times by	E Clock h m s 10 32 29	h m s 10 33 28	h m s 10 35 11	h m s 10 36 12	h m s 11 41 50	h m s 11 43 5	h m s 11 44 53	h m s 11 45 50
	W Clock h m s 10 23 12	h m s 10 24 11	h m s 10 25 53	h m s 10 26 57	h m s 11 32 32	h m s 11 33 47	h m s 11 35 35	h m s 11 36 35
	s +0'289	s +0'299	s +0'199	s +0'444	s +0'935	s +0'950	s +0'550	s +0'786
Difference	m s 9 16'711*	m s 9 16'701*	m s 9 18'199	m s 9 15'444	m s 9 17'065*	m s 9 17'050*	m s 9 18'550	m s 9 15'786

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 16	s 0.80	s 0.78	s 0.73	s 0.95	s 0.43	s 0.40	s 0.01	s 0.27
	.79	.82	.73	.95	.43	.40	.04	.30
	.79	.80	.71	.94	.45	.41	.03	.29
	.78	.80	.70	.95	.47	.40	.05	.29
	.77	.77	.70	.95	.45	.40	.05	.29
	.80	.80	.72	.96	.45	.41	.04	.30
	.75	.76	.70	.95	.47	.40	.03	.30
	.78	.80	.70	.97	.49	.40	.06	.30
	.77	.77	.70	.96	.47	.40	.04	.29
	.76	.79	.70	.97	.47	.40	.04	.30
	.80	.76	.70	.95	.44	.40	.04	.30
	.75	.80	.70	.96	.49	.40	.04	.30
	.78	.79	.70	.95	.47	.40	.04	.30
	.80	.80	.70	.96	.45	.40	.05	.30
	.77	.76	.71	.95	.50	.40	.03	.30
	.76	.80	.70	.95	.45	.39	.06	.30
	.79	.79	.70	.94	.45	.39	.04	.29
	.77	.81	.70	.96	.47	.40	.05	.29
	.79	.78	.70	.94	.46	.40	.05	.30
	.80	.80	.70	.95	.46	.40	.06	.30
Corresponding Mean Observed Times by	E Clock h m s 10 32 36	h m s 10 33 47	h m s 10 35 36 s +0.705	h m s 10 36 33 s +0.953	h m s 11 42 36	h m s 11 43 50	h m s 11 45 16 s +0.043	h m s 11 46 13 s +0.296
	W Clock h m s 10 23 11 s +0.780	h m s 10 24 22 s +0.789	h m s 10 26 11	h m s 10 27 11	h m s 11 33 11 s +0.461	h m s 11 34 25 s +0.400	h m s 11 35 50	h m s 11 36 50
Difference	m s 9 24.220*	m s 9 24.211*	m s 9 25.705	m s 9 22.953	m s 9 24.539*	m s 9 24.600*	m s 9 26.043	m s 9 23.296

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 17	s 0'10	s 0'10	s 0'45	s 0'70	s 0'95	s 0'50	s 0'80	s 0'00
	'07	'05	'45	'69	'99	'47	'77	'00
	'05	'10	'45	'69	'99	'40	'79	'00
	'09	'05	'44	'70	1'00	'40	'78	'00
	'09	'07	'44	'70	0'97	'38	'79	'00
	'10	'08	'44	'69	1'00	'38	'77	'00
	'09	'12	'44	'69	0'99	'40	'79	'00
	'10	'08	'45	'69	1'00	'40	'78	'00
	'09	'07	'43	'69	1'00	'40	'80	'00
	'09	'09	'45	'69	1'03	'40	'78	'00
	'08	'06	'44	'69	1'01	'40	'80	'00
	'05	'02	'43	'69	1'01	'40	'79	'00
	'09	'03	'44	'69	1'00	'43	'80	'00
	'09	'05	'44	'68	1'05	'45	'78	'00
	'07	'05	'44	'69	1'00	'47	'80	'00
	'05	'09	'43	'67	1'05	'46	'79	'00
	'07	'09	'45	'68	1'02	'50	'79	'00
	'07	'07	'44	'69	1'04	'48	'78	'00
	'06	'04	'44	'69	1'04	'45	'79	'00
	'09	'10	'44	'69	1'05	'38	'77	'00
Corresponding Mean Observed Times by	E Clock h m s 10 32 22	h m s 10 33 30	h m s 10 35 44	h m s 10 36 41	h m s 11 42 25	h m s 11 43 47	h m s 11 45 18	h m s 11 46 11
	W Clock h m s 10 22 50	h m s 10 23 58	h m s 10 26 11	h m s 10 27 11	h m s 11 32 50	h m s 11 34 16	h m s 11 35 45	h m s 11 36 40
	s +0'080	s +0'071	s +0'442	s +0'690	s +1'010	s +0'428	s +0'787	s +0'000
Difference	m s 9 31'920*	m s 9 31'929*	m s 9 33'442	m s 9 30'690	m s 9 33'990	m s 9 30'572	m s 9 33'787	m s 9 31'000

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i>							
	At W		At E		At W		At E	
	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -	<i>Q</i> -	<i>Q</i> +	<i>Q</i> +	<i>Q</i> -
1883 March 18	<i>s</i> 0.60	<i>s</i> 0.03	<i>s</i> 0.10	<i>s</i> 0.37	<i>s</i> 0.25	<i>s</i> 0.63	<i>s</i> 0.48	<i>s</i> 0.70
	.60	.05	.12	.36	.22	.62	.48	.70
	.60	.05	.11	.39	.20	.64	.49	.71
	.63	.00	.11	.35	.20	.65	.49	.72
	.60	.02	.10	.39	.22	.70	.48	.71
	.60	.03	.11	.39	.23	.69	.49	.71
	.56	.02	.10	.39	.26	.73	.48	.70
	.59	.06	.12	.36	.24	.72	.48	.71
	.60	.03	.10	.37	.29	.72	.48	.72
	.64	.07	.12	.35	.30	.70	.49	.72
	.67	.03	.10	.39	.30	.71	.49	.72
	.68	.06	.12	.38	.32	.70	.49	.73
	.70	.05	.10	.37	.30	.70	.46	.71
	.70	.04	.12	.36	.30	.71	.49	.70
	.68	.04	.10	.37	.30	.73	.48	.71
	.66	.09	.12	.37	.30	.71	.49	.72
	.66	.08	.10	.39	.30	.70	.47	.71
	.66	.10	.12	.39	.30	.73	.48	.71
	.69	.10	.11	.38	.30	.73	.49	.72
	.70	.10	.10	.39	.29	.70	.50	.70
Corresponding Mean Observed Times by	<i>h m s</i> E Clock 10 32 53	<i>h m s</i> 10 34 5	<i>h m s</i> 10 36 11	<i>h m s</i> 10 37 13	<i>h m s</i> 11 42 57	<i>h m s</i> 11 44 7	<i>h m s</i> 11 45 11	<i>h m s</i> 11 46 11
	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>
			+ 0.109	+ 0.376			+ 0.484	+ 0.712
	<i>h m s</i> W Clock 10 23 11	<i>h m s</i> 10 24 27	<i>h m s</i> 10 26 30	<i>h m s</i> 10 27 35	<i>h m s</i> 11 33 15	<i>h m s</i> 11 34 28	<i>h m s</i> 11 35 30	<i>h m s</i> 11 36 33
	<i>s</i>	<i>s</i>			<i>s</i>	<i>s</i>		
	+ 0.641	+ 0.053			+ 0.271	+ 0.696		
Difference	<i>m s</i> 9 41.359	<i>m s</i> 9 37.947	<i>m s</i> 9 41.109	<i>m s</i> 9 38.376	<i>m s</i> 9 41.729	<i>m s</i> 9 38.304	<i>m s</i> 9 41.484	<i>m s</i> 9 38.712

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 19	s 0.85	s 0.86	s 0.62	s 0.85	s 0.70	s 0.21	s 1.00	s 0.20
	.88	.89	.62	.85	.70	.23	1.00	.20
	.89	.90	.61	.84	.70	.23	1.00	.20
	.90	.89	.60	.84	.80	.26	0.98	.20
	.86	.90	.60	.84	.80	.26	.99	.20
	.86	.89	.60	.83	.80	.29	.98	.20
	.90	.90	.60	.84	.82	.24	.98	.20
	.90	.89	.62	.85	.81	.22	.98	.20
	.89	.90	.60	.84	.89	.20	.97	.20
	.89	.89	.60	.83	.85	.23	.96	.20
	.90	.90	.60	.82	.88	.21	.95	.20
	.90	.90	.60	.85	.89	.20	.96	.20
	.90	.90	.60	.84	.85	.20	.99	.20
	.86	.90	.60	.85	.89	.21	.98	.20
	.86	.89	.61	.85	.86	.21	.96	.20
	.90	.87	.60	.85	.89	.22	.97	.20
	.89	.86	.60	.85	.89	.20	.99	.20
	.84	.89	.62	.87	.84	.20	.99	.20
	.86	.90	.62	.84	.85	.22	.99	.20
	.88	.89	.60	.85	.83	.22	.97	.20
Corresponding Mean Observed Times by	E Clock h m s 10 32 24	h m s 10 35 11	h m s 10 36 11	h m s 10 37 11	h m s 11 43 25	h m s 11 44 41	h m s 11 46 10	h m s 11 47 11
	s +0.881	s +0.891	s +0.606	s +0.844	s +0.827	s +0.223	s +0.980	s +0.200
	W Clock h m s 10 22 36	h m s 10 25 23	h m s 10 26 23	h m s 10 27 26	h m s 11 33 35	h m s 11 34 55	h m s 11 36 22	h m s 11 37 25
	s +0.881	s +0.891			s +0.827	s +0.223		
Difference	m s 9 47.119*	m s 9 47.109*	m s 9 48.606	m s 9 45.844	m s 9 49.173	m s 9 45.777	m s 9 48.980	m s 9 46.200

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, $Q$							
	At W		At E		At W		At E	
	$Q -$	$Q +$	$Q +$	$Q -$	$Q -$	$Q +$	$Q +$	$Q -$
1883 March 20	s 0'69	s 0'04	s 0'12	s 0'37	s 1'00	s 0'05	s 0'44	s 0'70
	'66	'02	'15	'38	'00	'05	'45	'69
	'65	'00	'11	'35	'00	'03	'45	'70
	'70	'01	'14	'35	0'99	'05	'45	'70
	'68	'00	'13	'35	'00	'10	'45	'70
	'69	'02	'14	'34	'00	'04	'45	'70
	'65	'01	'13	'35	'00	'04	'47	'70
	'69	'03	'13	'35	'00	'05	'45	'70
	'69	'03	'11	'34	'00	'05	'48	'70
	'70	'09	'15	'33	'00	'05	'48	'70
	'70	'10	'13	'34	0'99	'05	'48	'70
	'73	'10	'12	'38	'00	'04	'48	'70
	'76	'10	'10	'37	'00	'00	'46	'69
	'75	'11	'13	'35	'00	'00	'49	'70
	'74	'12	'12	'35	'00	'05	'47	'70
	'74	'13	'14	'33	1'03	'05	'47	'70
	'72	'13	'10	'34	'00	'05	'46	'70
	'72	'13	'12	'35	'00	'05	'48	'70
	'75	'10	'10	'34	'00	'05	'48	'70
	'73	'10	'13	'34	1'00	'05	'50	'70
Corresponding Mean Observed Times by	E Clock h m s 10 32 27	h m s 10 34 11	h m s 10 36 0 s +0'125	h m s 10 37 11 s +0'350	h m s 11 43 1	h m s 11 44 24	h m s 11 45 26 s +0'467	h m s 11 46 23 s +0'699
	W Clock h m s 10 22 30 s +0'707	h m s 10 24 18 s +0'069	h m s 10 26 4	h m s 10 27 18	h m s 11 33 5 s + 1'001	h m s 11 34 29 s +0'045	h m s 11 35 30	h m s 11 36 30
Difference	m s 9 56'293	m s 9 52'931	m s 9 56'125	m s 9 53'350	m s 9 54'999*	m s 9 54'955*	m s 9 56'467	m s 9 53'699

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 28	s 0'44	s 0'56	s 0'93	s 0'11	s 0'59	s 0'60	s 0'90	s 0'09
	'50	'55	'90	'11	'57	'60	'90	'09
	'56	'59	'92	'11	'60	'60	'89	'09
	'56	'56	'90	'10	'58	'60	'89	'09
	'50	'58	'94	'13	'58	'59	'89	'09
	'50	'55	'92	'12	'59	'55	'89	'09
	'55	'52	'90	'10	'59	'64	'89	'09
	'54	'53	'91	'10	'58	'53	'89	'09
	'57	'53	'92	'11	'60	'60	'89	'10
	'56	'55	'94	'11	'57	'60	'89	'09
	'55	'54	'93	'10	'60	'56	'87	'09
	'54	'55	'92	'11	'60	'59	'87	'09
	'56	'54	'93	'11	'60	'60	'87	'09
	'56	'54	'94	'11	'60	'60	'88	'10
	'56	'50	'94	'12	'60	'63	'87	'10
	'50	'57	'95	'12	'60	'60	'87	'09
	'53	'53	'94	'13	'60	'61	'86	'10
	'53	'55	'90	'13	'58	'60	'88	'10
	'56	'55	'92	'13	'59	'60	'88	'09
	'54	'57	'94	'13	'59	'60	'89	'09
Corresponding Mean Observed Times by	E Clock	h m s	h m s	h m s	h m s	h m s	h m s	h m s
		11 41 43	11 43 11	11 44 55	11 45 46	12 42 45	12 44 11	12 45 55
				s +0'925	s +0'115		s +0'883	s +0'093
	W Clock	h m s	h m s	h m s	h m s	h m s	h m s	h m s
		11 25 35	11 27 3	11 28 47	11 29 40	12 26 37	12 28 3	12 29 17
		s +0'536	s +0'548		s +0'591	s +0'595		
Difference	m s	m s	m s	m s	m s	m s	m s	m s
	16 7'464*	16 7'452*	16 8'925	16 6'115	16 7'409*	16 7'405*	16 8'883	16 6'093

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 29	s 0'29	s 0'32	s 0'15	s 0'39	s 0'90	s 1'00	s 0'08	s 0'30
	'30	'33	'15	'38	'90	1'00	'08	'29
	'30	'32	'16	'40	'90	1'00	'06	'29
	'30	'32	'16	'38	'90	1'00	'05	'30
	'25	'30	'15	'39	'90	1'00	'06	'29
	'29	'32	'15	'39	'90	1'00	'05	'30
	'29	'30	'15	'38	'86	1'00	'10	'28
	'30	'30	'14	'36	'85	1'00	'05	'30
	'30	'30	'16	'37	'85	1'00	'07	'28
	'30	'30	'16	'35	'88	1'00	'06	'30
	'30	'30	'15	'38	'83	1'00	'05	'29
	'32	'33	'15	'38	'84	0'98	'05	'29
	'30	'32	'15	'39	'84	'98	'07	'29
	'31	'30	'14	'39	'88	'97	'05	'29
	'30	'30	'18	'39	'84	'97	'07	'30
	'30	'30	'16	'39	'84	'95	'05	'30
	'31	'30	'17	'39	'84	'95	'06	'29
	'30	'32	'16	'38	'86	'95	'06	'30
	'30	'30	'17	'39	'82	'95	'08	'30
	'30	'30	'14	'39	'86	'95	'05	'30
Corresponding Mean Observed Times by	E Clock h m s 11 42 26	h m s 11 43 38	h m s 11 45 50	h m s 11 46 45	h m s 13 9 22	h m s 13 10 16	h m s 13 11 48	h m s 13 12 30
			s +0'155	s +0'383			s +0'063	s +0'294
	W Clock h m s 11 26 19	h m s 11 27 31	h m s 11 29 42	h m s 11 30 40	h m s 12 53 13	h m s 12 54 10	h m s 12 55 40	h m s 12 56 25
	s +0'298	s +0'309			s +0'865	s +0'983		
Difference	m s 16 6'702*	m s 16 6'691*	m s 16 8'155	m s 16 5'383	m s 16 8'135	m s 16 5'017	m s 16 8'063	m s 16 5'294

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 30	s 0.73	s 0.89	s 0.20	s 0.40	s 0.60	s 0.89	s 0.16	s 0.39
	.74	.90	.20	.41	.60	.88	.18	.40
	.74	.90	.20	.40	.60	.90	.16	.40
	.73	.90	.18	.40	.62	.88	.17	.40
	.74	.89	.20	.41	.69	.89	.14	.39
	.72	.90	.20	.40	.70	.88	.19	.40
	.73	.88	.19	.40	.75	.87	.15	.40
	.70	.90	.20	.41	.80	.87	.17	.40
	.71	.90	.20	.41	.80	.88	.15	.40
	.70	.90	.20	.40	.80	.86	.16	.40
	.73	.90	.20	.40	.78	.90	.15	.39
	.75	.90	.20	.40	.79	.88	.15	.40
	.75	.90	.20	.40	.80	.90	.15	.40
	.76	.90	.20	.40	.80	.88	.18	.40
	.77	.95	.20	.42	.80	.89	.16	.39
	.77	.95	.20	.42	.79	.85	.17	.39
		.90	.20	.43	.78	.85	.16	.39
		.95	.20	.41	.79	.84	.16	.39
		.89	.20	.42	.79	.85	.15	.37
		.89	.20	.43	.80	.82	.15	.38
Corresponding Mean Observed Times by	E Clock h m s 11 41 35	h m s 11 42 48	h m s 11 44 49	h m s 11 45 44	h m s 12 41 20	h m s 12 41 45	h m s 12 43 24	h m s 12 44 15
			s +0.199	s +0.409			s +0.161	s +0.394
	W Clock h m s 11 25 27	h m s 11 26 43	h m s 11 28 42	h m s 11 29 40	h m s 12 25 12	h m s 12 25 40	h m s 12 27 17	h m s 12 28 11
	s +0.736	s +0.905			s +0.744	s +0.873		
Difference	m s 16 7.264	m s 16 4.095	m s 16 7.199	m s 16 4.409	m s 16 7.256	m s 16 4.127	m s 16 7.161	m s 16 4.394

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 March 31	s 0' 20	s 0' 37	s 0' 60	s 0' 84	s 0' 27	s 0' 45	s 0' 55	s 0' 79
	' 20	' 38	' 60	' 83	' 30	' 46	' 56	' 79
	' 20	' 40	' 60	' 84	' 30	' 50	' 55	' 79
	' 20	' 39	' 60	' 83	' 30	' 49	' 55	' 78
	' 20	' 40	' 60	' 85	' 29	' 49	' 55	' 79
	' 20	' 40	' 60	' 82	' 29	' 49	' 55	' 75
	' 23	' 44	' 60	' 85	' 24	' 50	' 55	' 78
	' 25	' 48	' 60	' 83	' 29	' 50	' 54	' 75
	' 25	' 50	' 61	' 84	' 30	' 50	' 57	' 78
	' 29	' 48	' 60	' 85	' 30	' 50	' 55	' 75
	' 25	' 48	' 60	' 85	' 29	' 49	' 57	' 79
	' 25	' 46	' 60	' 84	' 29	' 47	' 55	' 76
	' 24	' 49	' 61	' 84	' 30	' 45	' 56	' 78
	' 25	' 50	' 62	' 83	' 30	' 45	' 56	' 74
	' 26	' 51	' 61	' 86	' 30	' 47	' 55	' 78
	' 30	' 50	' 61	' 82	' 30	' 48	' 56	' 79
	' 29	' 52	' 60	' 85	' 30	' 49	' 56	' 77
	' 29	' 50	' 62	' 84	' 31	' 48	' 57	' 73
	' 29	' 53	' 61	' 85	' 30	' 46	' 55	' 79
	' 30	' 50	' 60	' 85	' 31	' 47	' 58	' 75
Corresponding Mean Observed Times by	h m s 11 41 50	h m s 11 43 11	h m s 11 44 46	h m s 11 45 43	h m s 12 42 50	h m s 12 43 33	h m s 12 45 2	h m s 12 45 29
			s + 0' 605	s + 0' 841			s + 0' 557	s + 0' 772
	h m s 11 25 43	h m s 11 27 7	h m s 11 28 40	h m s 11 29 40	h m s 12 26 43	h m s 12 27 29	h m s 12 28 56	h m s 12 29 26
	s + 0' 247	s + 0' 462			s + 0' 294	s + 0' 480		
Difference	m s 16 6' 753	m s 16 3' 538	m s 16 6' 605	m s 16 3' 841	m s 16 6' 706	m s 16 3' 520	m s 16 6' 557	m s 16 3' 772



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q -	Q +	Q -	Q +	Q +	Q -
1883 April 3	s 1'00	s 0'06	s 0'12	s 0'89	s 0'60	s 0'63	s 0'83	s 0'05
	1'00	'03	'14	'90	'62	'63	'84	'05
	0'99	'02	'13	'89	'60	'64	'83	'04
	1'00	'00	'13	'90	'61	'64	'86	'09
	0'95	'00	'12	'89	'60	'63	'83	'07
	'96	'00	'12	'90	'61	'64	'87	'08
	'95	'00	'10	'90	'60	'60	'83	'04
	'98	'00	'11	'90	'60	'64	'84	'06
	'97	'01	'12	'93	'59	'60	'82	'04
	1'00	'00	'12	'90	'62	'57	'85	'07
	0'97	'03	'12	'91	'60	'60	'82	'04
	'97	'02	'14	'90	'62	'62	'84	'05
	'97	'03	'12	'93	'60	'61	'81	'03
	'99	'03	'13	'90	'64	'62	'86	'06
	'97	'03	'11	'91	'62	'60	'84	'06
	1'00	'04	'14	'90	'65	'65	'86	'05
	0'99	'04	'13	'93	'60	'61	'81	'04
	'98	'04	'13	'89	'63	'66	'84	'05
	1'00	'04	'11	'90	'64	'62	'83	'05
	1'00	'05	'13	'90	'60	'63	'86	'05
Corresponding Mean Observed Times by	E Clock h m s 11 42 15	h m s 11 43 12	h m s 11 45 48	h m s 11 46 48	h m s 12 41 24	h m s 12 42 50	h m s 12 39 38	h m s 12 44 24
			s +0'124	s +0'904			s +0'839	s +0'054
W Clock	h m s 11 26 10	h m s 11 27 11	h m s 11 29 47	h m s 11 30 45	h m s 12 25 21	h m s 12 26 47	h m s 12 23 35	h m s 12 28 23
	s +0'982	s +0'024			s +0'613	s +0'622		
Difference	m s 16 4'018	m s 16 0'976	m s 16 1'124	m s 16 3'904	m s 16 2'387*	m s 16 2'378*	m s 16 3'839	m s 16 1'054

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Station at which Comparison was made, and Sign of Pen Equation, Q							
	At W		At E		At W		At E	
	Q -	Q +	Q +	Q -	Q -	Q +	Q +	Q -
1883 April 4	s 0'10	s 0'21	s 0'75	s 1'00	s 0'75	s 0'68	s 0'70	s 0'95
	'10	'23	'77	1'01	'75	'80	'69	'90
	'10	'24	'76	0'99	'74	'77	'69	'93
	'11	'27	'77	1'01	'75	'80	'67	'93
	'10	'26	'75	0'99	'80	'80	'69	'94
	'10	'29	'78	1'00	'80	'72	'68	'90
	'09	'27	'75	0'99	'75	'75	'67	'93
	'09	'28	'79	1'00	'80	'70	'68	'92
	'10	'26	'77	1'00	'78	'77	'68	'95
	'12	'27	'80	1'01	'78	'74	'68	'90
	'10	'24	'79	0'99	'78	'80	'69	'92
	'13	'29	'76	1'00	'78	'80	'69	'95
	'14	'29	'75	0'99	'78	'77	'69	'95
	'13	'31	'77	1'00	'78	'78	'68	'95
	'10	'32	'77	1'00	'78	'77	'69	'90
	'10	'31	'76	1'00	'77	'78	'69	'93
	'10	'32	'75	1'00	'75	'75	'70	'92
	'10	'33	'77	1'00	'75	'79	'70	'93
	'12	'32	'75	1'00	'78	'75	'70	'91
	'10	'38	'77	1'00	'77	'75	'69	'93
Corresponding Mean Observed Times by	E Clock h m s 11 42 40	h m s 11 43 20	h m s 11 45 13 s +0'767	h m s 11 45 54 s +0'999	h m s 12 42 13	h m s 12 42 59	h m s 12 38 42 s +0'688	h m s 12 44 59 s +0'927
	W Clock h m s 11 26 37 s +0'107	h m s 11 27 20 s +0'285	h m s 11 29 11	h m s 11 29 55	h m s 12 26 11 s +0'771	h m s 12 26 57 s +0'764	h m s 12 22 40	h m s 12 29 0
Difference	m s 16 2'893	m s 15 59'715	m s 16 2'767	m s 15 59'999	m s 16 1'229*	m s 16 1'236*	m s 16 2'688	m s 15 59'927

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction R		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences $D$ at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1882 December 4	$h \ m \ s$ 4 28 11 29 26 31 11 32 28	$m \ s$ 28 14'055 14'870 17'510 17'193	E W E W	$s$ +0'106 at 5 <sup>h</sup> 11 <sup>m</sup>		$m \ s$ 28 14'059 14'872 17'508 17'189	$\gamma$ $\beta$ $\alpha$ $\delta$	at W, $Q = 1'725$  at E, $Q = 1'159$	$+$  $s$ 0'123	$D = 28 \ 15'944$  $T_E = 4 \ 51 \ 29$				
"	4 30 19 5 49 11 50 26 52 30 54 2	28 15'907 28 14'207 14'988 17'694 17'309	E W E W			28 14'211 14'990 17'692 17'305	$\gamma$ $\beta$ $\alpha$ $\delta$	at W, $Q = 1'740$  at E, $Q = 1'157$	    $s$ 0'098	$D = 28 \ 15'980$  $T_E = 5 \ 11 \ 44$				
"	5 51 32	28 16'050												
December 5	4 28 15 31 45 33 34 36 28	28 19'397 15'909 19'072 16'732	E E W W			$s$ +0'070 at 5 <sup>h</sup> 12 <sup>m</sup>		28 19'402 15'910 19'071 16'727	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'746$  at E, $Q = 1'172$	   $s$ 0'122	$D = 28 \ 17'800$  $T_E = 4 \ 51 \ 29$		
"	4 32 31 5 50 28 51 41 52 6 53 30	28 17'778 28 16'857 19'484 16'017 19'126	W E E W					28 16'859 19'484 16'017 19'124	$\beta$ $\alpha$ $\gamma$ $\delta$	at W, $Q = 1'734$  at E, $Q = 1'133$	    $s$ 0'120	$D = 28 \ 17'824$  $T_E = 5 \ 11 \ 43$		
"	5 51 56	28 17'871												
December 6	4 28 55 30 30 31 29 33 32	28 21'299 18'591 17'799 20'956	E W E W					$s$ +0'082 at 5 <sup>h</sup> 11 <sup>m</sup>		28 21'302 18'592 17'798 20'953	$\alpha$ $\beta$ $\gamma$ $\delta$	at W, $Q = 1'752$  at E, $Q = 1'180$	   $s$ 0'111	$D = 28 \ 19'688$  $T_E = 4 \ 51 \ 14$
"	4 31 7 5 49 32 50 30 52 29 54 21	28 19'661 28 21'422 18'668 17'959 21'035	E W E W							28 21'425 18'670 17'958 21'031	$\alpha$ $\beta$ $\gamma$ $\delta$	at W, $Q = 1'733$  at E, $Q = 1'181$	    $s$ 0'080	$D = 28 \ 19'717$  $T_E = 5 \ 12 \ 23$
"	5 51 43	28 19'771												

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$			
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$							
1882 December 7	$\begin{matrix} h & m & s \\ 4 & 28 & 11 \\ & 29 & 32 \\ & 31 & 5 \\ & 32 & 55 \end{matrix}$	$\begin{matrix} m & s \\ 28 & 23'144 \\ & 20'533 \\ & 19'728 \\ & 22'885 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$	$\begin{matrix} s \\ +0'096 \\ \text{at} \\ 5^h 11^m \end{matrix}$		$\begin{matrix} m & s \\ 28 & 23'148 \\ & 20'534 \\ & 19'727 \\ & 22'881 \end{matrix}$	$\begin{matrix} \alpha \\ \beta \\ \gamma \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'711 \\ \text{at E, } Q = 1'173 \end{matrix}$	$\begin{matrix} + \\ s \\ 0'135 \end{matrix}$	$\begin{matrix} D = 28 \ 21'605 \\ T_E = 4 \ 50 \ 26 \end{matrix}$			
"	$\begin{matrix} 4 & 30 & 26 \\ 5 & 49 & 11 \\ & 50 & 34 \\ & 51 & 31 \\ & 53 & 48 \end{matrix}$	$\begin{matrix} 28 & 21'573 \\ 28 & 23'300 \\ & 20'629 \\ & 19'900 \\ & 22'979 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$			$\begin{matrix} 28 & 23'303 \\ & 20'630 \\ & 19'900 \\ & 22'975 \end{matrix}$	$\begin{matrix} \alpha \\ \beta \\ \gamma \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'701 \\ \text{at E, } Q = 1'173 \end{matrix}$	$\begin{matrix} 0'100 \end{matrix}$	$\begin{matrix} D = 28 \ 21'640 \\ T_E = 5 \ 12 \ 22 \end{matrix}$			
December 8	$\begin{matrix} 4 & 28 & 33 \\ & 29 & 33 \\ & 31 & 37 \\ & 33 & 11 \end{matrix}$	$\begin{matrix} 28 & 21'616 \\ & 22'453 \\ & 25'046 \\ & 24'779 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$		$\begin{matrix} s \\ +0'082 \\ \text{at} \\ 5^h 11^m \end{matrix}$		$\begin{matrix} 28 & 21'619 \\ & 22'455 \\ & 25'045 \\ & 24'776 \end{matrix}$	$\begin{matrix} \gamma \\ \beta \\ \alpha \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'713 \\ \text{at E, } Q = 1'160 \end{matrix}$	$\begin{matrix} 0'142 \end{matrix}$	$\begin{matrix} D = 28 \ 23'501 \\ T_E = 4 \ 50 \ 24 \end{matrix}$		
"	$\begin{matrix} 4 & 30 & 44 \\ 5 & 48 & 50 \\ & 50 & 12 \\ & 51 & 37 \\ & 53 & 12 \end{matrix}$	$\begin{matrix} 28 & 23'474 \\ 28 & 21'755 \\ & 22'529 \\ & 25'196 \\ & 24'855 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$				$\begin{matrix} 28 & 21'758 \\ & 22'530 \\ & 25'195 \\ & 24'852 \end{matrix}$	$\begin{matrix} \gamma \\ \beta \\ \alpha \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'719 \\ \text{at E, } Q = 1'161 \end{matrix}$	$\begin{matrix} 0'107 \end{matrix}$	$\begin{matrix} D = 28 \ 23'531 \\ T_E = 5 \ 12 \ 21 \end{matrix}$		
December 9	$\begin{matrix} 4 & 28 & 35 \\ & 29 & 35 \\ & 31 & 11 \\ & 33 & 11 \end{matrix}$	$\begin{matrix} 28 & 23'647 \\ & 24'448 \\ & 27'072 \\ & 26'792 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$			$\begin{matrix} s \\ +0'089 \\ \text{at} \\ 5^h 11^m \end{matrix}$		$\begin{matrix} 28 & 23'650 \\ & 24'450 \\ & 27'071 \\ & 26'788 \end{matrix}$	$\begin{matrix} \gamma \\ \beta \\ \alpha \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'710 \\ \text{at E, } Q = 1'169 \end{matrix}$	$\begin{matrix} 0'129 \end{matrix}$	$\begin{matrix} D = 28 \ 25'519 \\ T_E = 4 \ 50 \ 23 \end{matrix}$	
"	$\begin{matrix} 4 & 30 & 38 \\ 5 & 48 & 59 \\ & 50 & 11 \\ & 52 & 11 \\ & 53 & 11 \end{matrix}$	$\begin{matrix} 28 & 25'490 \\ 28 & 23'778 \\ & 24'540 \\ & 27'199 \\ & 26'923 \end{matrix}$	$\begin{matrix} E \\ W \\ E \\ W \end{matrix}$					$\begin{matrix} 28 & 23'781 \\ & 24'541 \\ & 27'197 \\ & 26'920 \end{matrix}$	$\begin{matrix} \gamma \\ \beta \\ \alpha \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'708 \\ \text{at E, } Q = 1'190 \end{matrix}$	$\begin{matrix} 0'121 \end{matrix}$	$\begin{matrix} D = 28 \ 25'552 \\ T_E = 5 \ 12 \ 19 \end{matrix}$	
"	$\begin{matrix} 5 & 51 & 8 \end{matrix}$	$\begin{matrix} 28 & 25'610 \end{matrix}$	$\begin{matrix} W \end{matrix}$										

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri (E) and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$		
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$						
1882 December 11	$h \quad m \quad s$ 4 27 11 29 58 31 11 32 42	$m \quad s$ 28 27.502 28.281 30.966 30.641	E W E W	$s$ + 0.097 at 5 <sup>h</sup> 10 <sup>m</sup>		$m \quad s$ 28 27.507 28.281 30.965 30.637	$\gamma$  $\beta$  $\alpha$  $\delta$	at W, $Q = 1.729$  at E, $Q = 1.178$	+ $s$ 0.112	D = 28 29.380  $h \quad m \quad s$ $T_E = 4 \ 50 \ 20$		
„	4 30 16	28 29.348										
	5 48 11 49 11 50 42 51 11	28 27.676 28.393 30.740 31.100	E W W E					28 27.679 28.394 30.739 31.098	$\gamma$  $\beta$  $\delta$  $\alpha$	at W, $Q = 1.710$  at E, $Q = 1.172$	0.089	D = 28 29.416  $h \quad m \quad s$ $T_E = 5 \ 12 \ 16$
	5 49 49	28 29.477										

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals trans- mitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpo- lated $R_1$	Reduced Clock Difference $d_1$				
1882 December 21	$h \quad m \quad s$ 4 58 4 58 11 59 47 61 11	$m \quad s$ 1 1.226 4.562 1.524 4.437	E E W W	$s$ -0.001 at 5 <sup>h</sup> 24 <sup>m</sup>		$m \quad s$ 1 1.226 4.562 1.524 4.437	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1.668$ at E, $Q = 1.457$	+  $s$ 0.043	D = $m \quad s$ 1 2.937  $T_E = h \quad m \quad s$ 5 18 33
"	4 59 18 5 46 55 47 49 49 32 50 35 5 48 43	1 2.937 1 1.511 4.429 1.229 4.576 1 2.936	W W E E			1 1.511 4.429 1.229 4.576	$\beta$ $\delta$ $\gamma$ $\alpha$	at W, $Q = 1.674$ at E, $Q = 1.459$	0.034	D = $m \quad s$ 1 2.936  $T_E = h \quad m \quad s$ 5 33 51

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction R		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$		
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$						
1882 December 26	$h \ m \ s$ 4 59 0 59 55 5 1 39 2 52	$m \ s$ 0 59'101 1 2'431 0 59'453 1 2'315	E E W W	$s$ -0'012 at 5 <sup>h</sup> 23 <sup>m</sup>		$m \ s$ 0 59'101 1 2'431 0 59'453 1 2'315	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'665$ at E, $Q = 1'431$	+ $s$ 0'059	$D = 1 \ 0'822$ $T_E = 5 \ 16 \ 55$		
"	5 0 52 5 43 55 44 45 46 40 47 52 5 45 48	1 0'825 0 59'099 1 2'427 0 59'428 1 2'311 1 0'816	E E W W		0 59'099 1 2'427 0 59'428 1 2'311	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'664$ at E, $Q = 1'441$	0'053	$D = 1 \ 0'819$ $T_E = 5 \ 31 \ 21$			
December 27	4 59 40 5 0 50 2 12 3 27	0 58'413 1 1'753 0 58'771 1 1'659	E E W W		$s$ -0'031 at 5 <sup>h</sup> 24 <sup>m</sup>		0 58'412 1 1'753 0 58'771 1 1'660	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'670$ at E, $Q = 1'445$	0'067	$D = 1 \ 0'141$ $T_E = 5 \ 17 \ 41$	
"	5 1 32 5 44 40 45 40 46 59 47 52 5 46 18	1 0'149 0 58'405 1 1'744 0 58'739 1 1'615 1 0'126	E E W W			0 58'404 1 1'744 0 58'739 1 1'616	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'670$ at E, $Q = 1'438$	0'052	$D = 1 \ 0'132$ $T_E = 5 \ 33 \ 58$		
December 28	5 0 11 1 13 3 48 4 36	0 57'806 1 1'133 0 58'115 1 1'007	E E W W			$s$ -0'001 at 5 <sup>h</sup> 24 <sup>m</sup>		0 57'806 1 1'133 0 58'115 1 1'007	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'664$ at E, $Q = 1'446$	0'046	$D = 0 \ 59'515$ $T_E = 5 \ 17 \ 38$
"	5 2 27 5 43 56 44 50 46 59 47 56 5 45 55	0 59'515 0 57'805 1 1'141 0 58'105 1 1'004 0 59'514	E E W W				0 57'805 1 1'141 0 58'105 1 1'004	$\gamma$ $\alpha$ $\beta$ $\delta$	at W, $Q = 1'668$ at E, $Q = 1'450$	0'041	$D = 0 \ 59'514$ $T_E = 5 \ 34 \ 46$	

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Jalpaiguri (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$	
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$					
1882 December 29	$\begin{matrix} h & m & s \\ 4 & 59 & 50 \\ 5 & 1 & 0 \\ & 4 & 18 \\ & 5 & 16 \end{matrix}$	$\begin{matrix} m & s \\ 0 & 57'321 \\ 1 & 0'652 \\ 0 & 57'624 \\ 1 & 0'522 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$	$\begin{matrix} s \\ -0'022 \\ \text{at} \\ 5^h 24^m \end{matrix}$		$\begin{matrix} m & s \\ 0 & 57'320 \\ 1 & 0'651 \\ 0 & 57'625 \\ 1 & 0'523 \end{matrix}$	$\begin{matrix} \gamma \\ \alpha \\ \beta \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'665 \\ \text{at E, } Q = 1'449 \end{matrix}$	$\begin{matrix} + \\ s \\ 0'044 \end{matrix}$	$\begin{matrix} D = 0^m 59'025 \\ T_E = 5^h 17^m 35^s \end{matrix}$	
"	$\begin{matrix} 5 & 2 & 36 \\ 5 & 44 & 11 \\ & 45 & 12 \\ & 46 & 56 \\ & 47 & 59 \\ & 5 & 46 & 5 \end{matrix}$	$\begin{matrix} 0 & 59'030 \\ 0 & 57'300 \\ 1 & 0'649 \\ 0 & 57'598 \\ 1 & 0'509 \\ 0 & 59'014 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$			$\begin{matrix} 0 & 57'299 \\ 1 & 0'649 \\ 0 & 57'598 \\ 1 & 0'510 \end{matrix}$	$\begin{matrix} \gamma \\ \alpha \\ \beta \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'675 \\ \text{at E, } Q = 1'456 \end{matrix}$	$\begin{matrix} 0'040 \end{matrix}$	$\begin{matrix} D = 0^m 59'018 \\ T_E = 5^h 33^m 52^s \end{matrix}$	
1883 January 2	$\begin{matrix} 5 & 0 & 35 \\ & 1 & 35 \\ & 3 & 50 \\ & 4 & 50 \end{matrix}$	$\begin{matrix} 0 & 54'316 \\ & 57'645 \\ & 54'670 \\ & 57'542 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$		$\begin{matrix} s \\ -0'010 \\ \text{at} \\ 5^h 24^m \end{matrix}$		$\begin{matrix} 0 & 54'316 \\ & 57'645 \\ & 54'670 \\ & 57'542 \end{matrix}$	$\begin{matrix} \gamma \\ \alpha \\ \beta \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'665 \\ \text{at E, } Q = 1'436 \end{matrix}$	$\begin{matrix} 0'063 \end{matrix}$	$\begin{matrix} D = 0^m 56'041 \\ T_E = 5^h 17^m 23^s \end{matrix}$
"	$\begin{matrix} 5 & 2 & 43 \\ 5 & 43 & 20 \\ & 44 & 30 \\ & 46 & 40 \\ & 47 & 45 \\ & 5 & 45 & 34 \end{matrix}$	$\begin{matrix} 0 & 56'043 \\ 0 & 54'305 \\ & 57'647 \\ & 54'648 \\ & 57'543 \\ 0 & 56'036 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$				$\begin{matrix} 0 & 54'305 \\ & 57'647 \\ & 54'648 \\ & 57'543 \end{matrix}$	$\begin{matrix} \gamma \\ \alpha \\ \beta \\ \delta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1'671 \\ \text{at E, } Q = 1'448 \end{matrix}$	$\begin{matrix} 0'060 \end{matrix}$	$\begin{matrix} D = 0^m 56'038 \\ T_E = 5^h 33^m 40^s \end{matrix}$

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = -\frac{\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$					
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$									
1888 January 12	$h \quad m \quad s$ 7 7 35 8 40 10 44 11 40	$m \quad s$ 13 3'061 0'135 3'565 0'104	E E W W	$s$ +0'075 at 7 <sup>h</sup> 42 <sup>m</sup>		$m \quad s$ 13 3'064 0'136 3'564 0'102	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'464$ at E, $Q = 1'731$	+  0'117	$D = 13 \quad m \quad s$ $T_E = 7 \quad 27 \quad 21$					
"	7 9 40 8 12 48 13 49 15 12 16 11	13 1'716 13 3'120 0'248 3'639 0'179	E E W W			13 3'122 0'249 3'638 0'177	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'437$ at E, $Q = 1'731$	0'111	$D = 13 \quad m \quad s$ $T_E = 7 \quad 51 \quad 59$					
"	8 14 30	13 1'797													
January 13	7 7 25 8 35 9 31 10 28	13 5'656 2'632 6'016 2'583	E E W W			$s$ +0'124 at 7 <sup>h</sup> 42 <sup>m</sup>		13 5'659 2'633 6'015 2'580	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'513$ at E, $Q = 1'717$	0'076	$D = 13 \quad m \quad s$ $T_E = 7 \quad 27 \quad 20$			
"	7 9 0 8 12 35 13 35 14 40 15 29	13 4'222 13 5'743 2'783 4'443 4'454	E E W W					13 5'746 2'784 4'442* 4'451*	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'481$ at E, $Q = 1'717^*$	0'091	$D = 13 \quad m \quad s$ $T_E = 7 \quad 51 \quad 12$			
"	8 14 5	13 4'356													
January 14	7 7 49 8 48 10 54 11 45	13 8'312 5'274 7'027 7'000	E E W W					$s$ +0'085 at 7 <sup>h</sup> 42 <sup>m</sup>		13 8'315 5'275 7'025* 6'997*	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'520$ at E, $Q = 1'710^*$	0'108	$D = 13 \quad m \quad s$ $T_E = 7 \quad 27 \quad 6$	
"	7 9 49 8 12 40 13 35 15 40 16 44	13 6'903 13 8'383 5'364 7'126 7'106	E E W W							13 8'386 5'366 7'125* 7'103*	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1'510$ at E, $Q = 1'710^*$	0'119	$D = 13 \quad m \quad s$ $T_E = 7 \quad 51 \quad 11$	
"	8 14 40	13 6'995													

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.



TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Chittagong (E) and Jalpaiguri (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1883 January 15	$h \ m \ s$ 7 7 48 8 47 10 50 11 51	$m \ s$ 13 10 916 7 829 7 892 11 198	E E W W	$s$ +0.103 at 7 <sup>h</sup> 42 <sup>m</sup>		$m \ s$ 13 10 920 7 831 7 890 11 194	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1^s.544$  at E, $Q = 1^s.652$	$\tau$ $s$ 0.083	$D = 13 \ 9^s.489$  $T_E = 7 \ 27 \ 5$				
"	7 9 49 8 12 35 13 50 15 22 16 19	13 9 459 13 11 000 7 947 11 349 7 982	E E W W			13 11 003 7 948 11 348 7 979	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1^s.528$  at E, $Q = 1^s.685$	0.094	$D = 13 \ 9^s.530$  $T_E = 7 \ 51 \ 9$				
	8 14 32	13 9 570												
January 17	7 7 48 8 46 10 27 11 42	13 15 804 12 765 16 241 12 804	E E W W			$s$ +0.088 at 7 <sup>h</sup> 42 <sup>m</sup>		13 15 807 12 766 16 240 12 801	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1^s.520$  at E, $Q = 1^s.719$	0.117	$D = 13 \ 14^s.429$  $T_E = 7 \ 27 \ 1$		
"	7 9 41 8 13 0 13 48 15 58 16 56	13 14 404 13 15 921 12 901 12 906 16 273	E E W W					13 15 924 12 903 12 905 16 270	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1^s.511$  at E, $Q = 1^s.683$	0.087	$D = 13 \ 14^s.467$  $T_E = 7 \ 52 \ 8$		
	8 14 56	13 14 500												
January 18	7 7 46 8 50 10 12 11 11	13 18 117 15 122 18 575 15 201	E E W W					$s$ +0.111 at 7 <sup>h</sup> 42 <sup>m</sup>		13 18 120 15 123 18 574 15 198	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1^s.498$  at E, $Q = 1^s.688$	0.132	$D = 13 \ 16^s.786$  $T_E = 7 \ 26 \ 59$
"	7 9 30 8 13 0 13 50 15 12 16 11	13 16 754 13 18 292 15 217 18 673 15 313	E E W W							13 18 295 15 218 18 672 15 310	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1^s.539$  at E, $Q = 1^s.681$	0.117	$D = 13 \ 16^s.831$  $T_E = 7 \ 51 \ 4$
	8 14 33	13 16 874												

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1883 January 23	$h \ m \ s$ 7 48 13 49 13 50 21 51 48	$m \ s$ 14 1'20.6 13 58'08.0 14 1'48.2 13 58'09.3	E E W W	$s$ -0'097 at 8 <sup>h</sup> 17 <sup>m</sup>	•	$m \ s$ 14 1'20.3 13 58'07.9 14 1'48.3 13 58'09.6	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'56.2$ at E, $Q = 1'69.4$	+ $s$ 0'074	$D = 13 \ 59'69.8$ $T_E = 8 \ 0 \ 26$
"	7 49 54 8 42 50 43 50 46 12 46 50 8 44 56	13 59'71.5 14 1'10.1 13 57'99.1 58'04.7 14 1'36.6 13 59'62.6	E E W W			14 1'09.8 13 57'98.9 58'04.9 14 1'36.9	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1'55.5$ at E, $Q = 1'66.0$	0'083	$D = 13 \ 59'67.0$ $T_E = 8 \ 17 \ 34$
January 24	7 48 50 49 50 50 43 51 44	13 57'79.5 54'66.5 58'07.0 54'67.2	E E W W	$s$ -0'15.3 at 8 <sup>h</sup> 18 <sup>m</sup>	•	13 57'79.1 54'66.4 58'07.1 54'67.6	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'56.3$ at E, $Q = 1'69.7$	0'073	$D = 13 \ 56'27.1$ $T_E = 8 \ 2 \ 10$
"	7 50 17 8 42 50 43 50 45 43 46 40 8 44 46	13 56'30.1 13 57'66.6 54'51.2 57'93.1 54'54.0 13 56'16.2	E E W W			13 57'66.1 54'51.0 57'93.3 54'54.5	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'57.6$ at E, $Q = 1'69.4$	0'077	$D = 13 \ 56'22.8$ $T_E = 8 \ 19 \ 4$
January 25	7 47 11 48 45 50 11 51 21	13 54'17.9 51'04.6 54'44.8 51'02.6	E E W W	$s$ -0'12.0 at 8 <sup>h</sup> 17 <sup>m</sup>	•	13 54'17.5 51'04.5 54'45.0 51'03.0	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'56.5$ at E, $Q = 1'71.0$	0'065	$D = 13 \ 52'65.0$ $T_E = 8 \ 2 \ 5$
"	7 49 22 8 42 47 43 40 46 2 47 5 8 44 54	13 52'67.5 13 54'03.9 50'94.9 50'90.7 54'34.1 13 52'56.4	E E W W			13 54'05.5 50'94.6 50'90.9 54'34.5	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1'55.4$ at E, $Q = 1'71.8$	0'063	$D = 13 \ 52'61.5$ $T_E = 8 \ 19 \ 24$

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$			
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$							
1883 January 26	$h \ m \ s$ 7 48 20 50 20 51 59 52 50	$m \ s$ 13 50'615 47'533 47'516 50'932	E E W W	$s$ -0'126 at 8 <sup>h</sup> 18 <sup>m</sup>		$m \ s$ 13 50'610	$\alpha$	at W, $Q = 1'539$	$+ s$ 0'078	$D = 13 \ 49'125$			
						47'532	$\gamma$	at E, $Q = 1'709$		$T_E = 8 \ 2 \ 5$			
						47'518	$\beta$						
						50'936	$\delta$						
"	7 50 52	13 49'149						13 50'522		$\alpha$	at W, $Q = 1'560$		$D = 13 \ 49'089$
	8 42 30	13 50'527	E					47'403		$\gamma$	at E, $Q = 1'707$	0'074	$T_E = 8 \ 19 \ 37$
	44 11	47'404	E					50'817		$\delta$			
	45 41	50'815	W					47'403		$\beta$			
	46 37	47'399	W										
	8 44 45	13 49'036											
January 28	7 47 56 48 56 49 55 50 52	13 44'176 41'053 44'463 40'975	E E W W	$s$ -0'120 at 8 <sup>h</sup> 17 <sup>m</sup>		13 44'173	$\alpha$	at W, $Q = 1'560$	$0'054$	$D = 13 \ 42'642$			
						41'052	$\gamma$	at E, $Q = 1'743$		$T_E = 8 \ 1 \ 58$			
						44'464	$\delta$						
						40'978	$\beta$						
"	7 49 25	13 42'667						13 44'059		$\alpha$	at W, $Q = 1'574$	$0'070$	$D = 13 \ 42'606$
	8 42 56	13 44'063	E					40'912		$\gamma$	at E, $Q = 1'700$		$T_E = 8 \ 19 \ 32$
	43 57	40'914	E					44'325		$\delta$			
	45 34	44'323	W					40'926		$\beta$			
	46 31	40'922	W										
	8 44 45	13 42'556											
January 29	7 47 56 48 56 50 32 51 28	13 41'547 38'400 41'831 38'423	E E W W	$s$ -0'116 at 8 <sup>h</sup> 17 <sup>m</sup>		13 41'544	$\alpha$	at W, $Q = 1'573$	$0'079$	$D = 13 \ 40'026$			
						38'398	$\gamma$	at E, $Q = 1'703$		$T_E = 8 \ 1 \ 55$			
						41'833	$\delta$						
						38'426	$\beta$						
"	7 49 43	13 40'050						13 41'432		$\alpha$	at W, $Q = 1'562$	$0'074$	$D = 13 \ 39'993$
	8 42 56	13 41'435	E					38'308		$\gamma$	at E, $Q = 1'706$		$T_E = 8 \ 19 \ 30$
	43 56	38'310	E					41'723		$\delta$			
	45 31	41'721	W					38'311		$\beta$			
	46 30	38'308	W										
	8 44 43	13 39'944											

*Arc Chittagong (E) and Calcutta (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1883 January 30	$h \quad m \quad s$ 7 46 56 48 56 50 30 51 31	$m \quad s$ 13 38'927 35'834 39'201 35'816	E E W W	$\begin{matrix} s \\ -0'118 \\ \text{at} \\ 8^h 17^m \end{matrix}$	$m \quad s$ 13 38'922 35'833 39'203 35'820	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'544$  at E, $Q = 1'692$	$\begin{matrix} + \\ s \\ 0'067 \end{matrix}$	$\begin{matrix} m \quad s \\ D = 13 37'421 \end{matrix}$  $\begin{matrix} h \quad m \quad s \\ T_E = 8 \quad 1 \quad 52 \end{matrix}$	
"	7 49 28 8 42 56 43 56 45 30 46 31 8 44 43	13 37'445 13 38'833 35'707 39'099 35'705 13 37'336	E E W W		13 38'829 35'705 39'101 35'709	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'562$  at E, $Q = 1'696$	$\begin{matrix} 0'069 \end{matrix}$	$\begin{matrix} m \quad s \\ D = 13 37'386 \end{matrix}$  $\begin{matrix} h \quad m \quad s \\ T_E = 8 \quad 19 \quad 27 \end{matrix}$	

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$	
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$					
1883 February 8	$h \quad m \quad s$ 9 24 15	$m \quad s$ 24 3'758	E	$\frac{s}{-0'224}$ at $10^h 3^m$		$m \quad s$ 24 3'752	$\alpha$	at W, $Q = 1'666$	+	$D = 24 \quad 2'096$	
	25 12	0'423	E		0'421	$\gamma$			$\frac{s}{0'068}$		
	26 30	3'849	W		3'851	$\delta$		at E, $Q = 1'630$		$\frac{h \quad m \quad s}{T_E = 9 \quad 41 \quad 32}$	
	27 31	0'586	W		0'592	$\beta$					
	9 25 52	24 2'154									
"	10 38 30	24 3'485	E			24 3'479	$\alpha$	at W, $Q = 1'679$		$\frac{m \quad s}{D = 24 \quad 2'021}$	
	39 31	0'122	E			0'120	$\gamma$		$\frac{s}{0'077}$		
	40 44	3'580	W			3'582	$\delta$	at E, $Q = 1'627$		$\frac{h \quad m \quad s}{T_E = 10 \quad 1 \quad 38}$	
	41 40	0'321	W			0'327	$\beta$				
	10 40 6	24 1'877									

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Calcutta (E), and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction R		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation $= \frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1883 February 9	$h \quad m \quad s$ 9 24 15 25 15 26 30 27 25	$m \quad s$ 23 58.568 55.254 58.672 55.379	E E W W	$s$ -0.226 at $10^h 3^m$		$m \quad s$ 23 58.562 55.252 58.674 55.385	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.655$  at E, $Q = 1.645$	+ $s$ 0.061	$D = 23 56.919$  $T_E = 9 38 55$				
"	9 25 51 10 37 40 38 40 40 50 41 45	23 56.968 23 58.299 54.977 58.386 55.096	E E W W			23 58.291 54.973 58.390 55.104	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.659$  at E, $Q = 1.643$	0.058	$\dagger D =$  $\dagger T_E =$				
	10 39 44	23 56.690												
February 10	9 22 15 23 20 24 35 25 31	23 53.632 50.301 53.746 50.467	E E W W			$s$ -0.200 at $10^h 1^m$		23 53.626 50.299 53.748 50.472	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.664$  at E, $Q = 1.638$	0.074	$D = 23 51.992$  $T_E = 9 37 18$		
"	9 23 55 10 37 15 38 21 39 11 40 11	23 52.037 23 53.397 50.047 53.486 50.222	E E W W					23 53.392 50.046 53.487 50.227	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.673$  at E, $Q = 1.630$	0.069	$D = 23 51.913$  $T_E = 10 1 11$		
	10 38 45	23 51.788												
February 11	9 27 11 28 12 29 24 30 25	23 49.084 45.743 49.184 45.945	E E W W					$s$ -0.196 at $10^h 4^m$		23 49.079 45.741 49.186 45.950	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.669$  at E, $Q = 1.618$	0.079	$D = 23 47.448$  $T_E = 9 41 30$
"	9 28 48 10 36 30 37 25 39 25 40 26	23 47.489 23 47.159* 47.179* 48.984 45.722	E E W W							23 47.153* 47.176* 48.987 45.728	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.642^*$  at E, $Q = 1.629$	0.096	$D = 23 47.381$  $T_E = 10 1 36$
	10 38 27	23 47.261												

\* Owing to irregular Chronograph Rate the Pen Equation has been determined and applied graphically before reading off the signals. † Owing to clouds intervening the group of stars, for which those quantities would be required, have not been observed.

*Arc Calcutta (E) and Fyzabad (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1883 February 13	$h \ m \ s$ 9 24 22	$m \ s$ 23 41'630	E	$s$ -0'152 at 10 <sup>h</sup> 2 <sup>m</sup>		$m \ s$ 23 41'626	$\alpha$	at W, $Q = 1'665$  + $s$ 0'096		$m \ s$ D = 23 40'018  $h \ m \ s$ $T_E = 9 \ 41 \ 29$				
	25 20	38'298	E			38'296	$\gamma$				at E, $Q = 1'640$			
	26 35	41'791	W			41'793	$\delta$							
	27 32	38'509	W			38'513	$\beta$							
"	9 25 57	23 40'057											0'081	$m \ s$ D = 23 39'967  $h \ m \ s$ $T_E = 10 \ 1 \ 35$
	10 36 20	23 41'457	E			23 41'453	$\alpha$				at W, $Q = 1'658$			
	37 20	38'138	E			38'136	$\gamma$							
	38 35	41'591	W			41'593	$\delta$				at E, $Q = 1'637$			
	39 30	38'315	W	38'319	$\beta$									
	10 37 56	23 39'875												
February 14	9 23 31	23 38'028	E	$s$ -0'146 at 10 <sup>h</sup> 3 <sup>m</sup>		23 38'023	$\alpha$	at W, $Q = 1'661$  0'067  at E, $Q = 1'639$		$m \ s$ D = 23 36'391  $h \ m \ s$ $T_E = 9 \ 41 \ 28$				
	24 30	34'704	E			34'702	$\gamma$							
	26 26	38'134	W			38'136	$\delta$							
	27 12	34'854	W			34'858	$\beta$							
"	9 25 25	23 36'430											0'073	$m \ s$ D = 23 36'342  $h \ m \ s$ $T_E = 10 \ 1 \ 35$
	10 39 0	23 34'701	W			23 34'696	$\beta$				at W, $Q = 1'685$			
	40 12	37'945	W			37'943	$\delta$							
	42 13	37'856	E			37'859	$\alpha$				at E, $Q = 1'624$			
	43 11	34'483	E			34'488	$\gamma$							
	10 41 9	23 36'246												

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1883 February 22	$h \ m \ s$ 9 43 32 44 40 46 50 47 55	$m \ s$ 33 46.667 43.270 46.780 43.521	E E W W	$s$ + 0.146 at 10 <sup>h</sup> 24 <sup>m</sup>		$m \ s$ 33 46.672 43.273 46.777 43.516	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.700$ at E, $Q = 1.631$	+ $s$ 0.087	$m \ s$ D = 33 45.095 $h \ m \ s$ $T_E = 10 \ 0 \ 17$
"	9 45 44 11 0 30 1 40 3 2 4 9 11 2 20	33 45.060 33 46.822 43.475 46.973 43.716 33 45.247	E E W W			33 46.826 43.477 46.971 43.712	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.674$ at E, $Q = 1.629$	0.095	$m \ s$ D = 33 45.135 $h \ m \ s$ $T_E = 10 \ 16 \ 18$
February 23	9 44 20 45 45 47 27 48 24	33 48.163 48.147 49.990 46.702	E E W W			33 48.168* 48.149* 49.988 46.698	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.704^*$ at E, $Q = 1.645$	0.092	$m \ s$ D = 33 48.282 $h \ m \ s$ $T_E = 10 \ 0 \ 16$
"	9 46 29 11 0 36 1 17 3 1 3 58 11 2 13	33 48.251 33 48.323 48.316 50.148 46.907 33 48.424	E E W W			33 48.327* 48.318* 50.146 46.903	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.700^*$ at E, $Q = 1.622$	0.101	$m \ s$ D = 33 48.319 $h \ m \ s$ $T_E = 10 \ 16 \ 17$
February 24	9 43 39 44 54 46 33 47 30	33 51.162 51.138 52.993 49.703	E E W W			33 51.167* 51.140* 52.991 49.698	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.772^*$ at E, $Q = 1.646$	0.096	$m \ s$ D = 33 51.285 $h \ m \ s$ $T_E = 10 \ 0 \ 15$
"	9 45 39 11 0 33 2 1 3 43 4 40 11 2 44	33 51.249 33 53.077 49.619 53.165 49.895 33 51.439	E E W W			33 53.082 49.621 53.163 49.890	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.731$ at E, $Q = 1.637$	0.087	$m \ s$ D = 33 51.328 $h \ m \ s$ $T_E = 10 \ 17 \ 49$

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

*Arc Calcutta (E) and Jubbulpore (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction R		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$			
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$							
1883 February 28	$h \ m \ s$ 9 43 50 45 0 46 55 48 5	$m \ s$ 34 6.872 6.889 8.726 5.472	E E W W	$s$ + 0.147 at 10 <sup>h</sup> 24 <sup>m</sup>		$m \ s$ 34 6.877* 6.891* 8.724 5.467	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.689^*$ at E, $Q = 1.628$	$+$ $s$ 0.106	$m \ s$ D = 34 7.025 $h \ m \ s$ $T_E = 10 \ 0 \ 9$			
"	9 45 58 10 59 55 11 1 11 2 35 3 35 11 1 49	34 6.990 34 7.073 7.083 8.906 5.641 34 7.176	E E W W			34 7.078* 7.085* 8.904 5.637	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.692^*$ at E, $Q = 1.634$		$m \ s$ D = 34 7.064 $h \ m \ s$ $T_E = 10 \ 16 \ 10$			
March 2	9 43 50 44 56 46 35 47 35 9 45 44 11 0 30 1 37 2 59 3 57 11 2 16	34 13.197 13.181 14.985 11.704 34 13.267 34 13.350 13.318 15.113 11.880 34 13.415	E E W W E E W W			$s$ + 0.116 at 10 <sup>h</sup> 24 <sup>m</sup>		34 13.201* 13.182* 14.984 11.700 34 13.353* 13.319* 15.112 11.877		$\alpha$ $\gamma$ $\delta$ $\beta$ $\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.683^*$ at E, $Q = 1.642$ at W, $Q = 1.701^*$ at E, $Q = 1.617$	$0.075$    $0.079$	$m \ s$ D = 34 13.295 $h \ m \ s$ $T_E = 10 \ 0 \ 7$  $m \ s$ D = 34 13.326 $h \ m \ s$ $T_E = 10 \ 16 \ 8$
"	9 43 45 45 11 46 23 47 26 9 45 41 10 59 54 11 1 9 2 34 3 35 11 1 48	34 18.006 14.637 18.144 14.860 34 16.412 34 18.186 14.829 18.308 15.078 34 16.600	E E W W E E W W					34 18.011 14.638 18.142 14.856 34 18.191 14.831 18.306 15.074		$\alpha$ $\gamma$ $\delta$ $\beta$ $\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.687$ at E, $Q = 1.643$ at W, $Q = 1.680$ at E, $Q = 1.616$		$^+D =$ $^+T_E =$ $m \ s$ D = 34 16.492 $h \ m \ s$ $T_E = 10 \ 18 \ 13$

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.  
 † Owing to clouds intervening, the groups of stars for which these



TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$			
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$							
1883 March 14	$\begin{matrix} h & m & s \\ 10 & 32 & 11 \\ & 33 & 19 \\ & 35 & 22 \\ & 36 & 19 \end{matrix}$	$\begin{matrix} m & s \\ 9 & 9^{\circ}035 \\ & 9^{\circ}035 \\ 10^{\circ}543 \\ 7^{\circ}757 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$	$\begin{matrix} s \\ +0^{\circ}.335 \\ \text{at} \\ 11^h 9^m \end{matrix}$		$\begin{matrix} m & s \\ 9 & 9^{\circ}047^* \\ & 9^{\circ}040^* \\ 10^{\circ}537 \\ 7^{\circ}746 \end{matrix}$	$\begin{matrix} \alpha \\ \gamma \\ \delta \\ \beta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.688^* \\ \text{at E, } Q = 1^{\circ}.396 \end{matrix}$	$\begin{matrix} + \\ s \\ 0^{\circ}.049 \end{matrix}$	$\begin{matrix} D = 9^m 9^s 172 \\ T_E = 10^h 48^m 27^s \end{matrix}$			
"	$\begin{matrix} 10 & 34 & 18 \\ 11 & 42 & 3 \\ & 42 & 41 \\ & 45 & 11 \\ & 46 & 11 \end{matrix}$	$\begin{matrix} 9 & 9^{\circ}093 \\ 9 & 8^{\circ}133 \\ 10^{\circ}895 \\ 9^{\circ}455 \\ 9^{\circ}444 \end{matrix}$	$\begin{matrix} W \\ W \\ W \\ E \\ E \end{matrix}$			$\begin{matrix} 9 & 8^{\circ}144 \\ 10^{\circ}903 \\ 9^{\circ}449^* \\ 9^{\circ}432^* \end{matrix}$	$\begin{matrix} \beta \\ \delta \\ \alpha \\ \gamma \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.699^* \\ \text{at E, } Q = 1^{\circ}.379 \end{matrix}$	$\begin{matrix} 0^{\circ}.042 \end{matrix}$	$\begin{matrix} D = 9^m 9^s 320 \\ T_E = 11^h 14^m 58^s \end{matrix}$			
March 15	$\begin{matrix} 10 & 32 & 29 \\ & 33 & 28 \\ & 35 & 11 \\ & 36 & 12 \end{matrix}$	$\begin{matrix} 9 & 16^{\circ}711 \\ & 16^{\circ}701 \\ 18^{\circ}199 \\ 15^{\circ}444 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$		$\begin{matrix} s \\ +0^{\circ}.301 \\ \text{at} \\ 11^h 9^m \end{matrix}$		$\begin{matrix} 9 & 16^{\circ}720^* \\ & 16^{\circ}705^* \\ 18^{\circ}195 \\ 15^{\circ}435 \end{matrix}$	$\begin{matrix} \alpha \\ \gamma \\ \delta \\ \beta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.699^* \\ \text{at E, } Q = 1^{\circ}.380 \end{matrix}$	$\begin{matrix} 0^{\circ}.051 \end{matrix}$	$\begin{matrix} D = 9^m 16^s 846 \\ T_E = 10^h 50^m 39^s \end{matrix}$		
"	$\begin{matrix} 10 & 34 & 20 \\ 11 & 41 & 50 \\ & 43 & 5 \\ & 44 & 54 \\ & 45 & 51 \end{matrix}$	$\begin{matrix} 9 & 16^{\circ}764 \\ 9 & 17^{\circ}065 \\ 17^{\circ}050 \\ 18^{\circ}550 \\ 15^{\circ}786 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$				$\begin{matrix} 9 & 17^{\circ}075^* \\ & 17^{\circ}054^* \\ 18^{\circ}545 \\ 15^{\circ}776 \end{matrix}$	$\begin{matrix} \alpha \\ \gamma \\ \delta \\ \beta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.699^* \\ \text{at E, } Q = 1^{\circ}.385 \end{matrix}$	$\begin{matrix} 0^{\circ}.048 \end{matrix}$	$\begin{matrix} D = 9^m 16^s 958 \\ T_E = 11^h 13^m 4^s \end{matrix}$		
March 16	$\begin{matrix} 10 & 32 & 36 \\ & 33 & 47 \\ & 35 & 37 \\ & 36 & 34 \end{matrix}$	$\begin{matrix} 9 & 24^{\circ}220 \\ & 24^{\circ}211 \\ 25^{\circ}705 \\ 22^{\circ}953 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$			$\begin{matrix} s \\ +0^{\circ}.299 \\ \text{at} \\ 11^h 10^m \end{matrix}$		$\begin{matrix} 9 & 24^{\circ}230^* \\ & 24^{\circ}215^* \\ 25^{\circ}700 \\ 22^{\circ}943 \end{matrix}$	$\begin{matrix} \alpha \\ \gamma \\ \delta \\ \beta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.689^* \\ \text{at E, } Q = 1^{\circ}.378 \end{matrix}$	$\begin{matrix} 0^{\circ}.049 \end{matrix}$	$\begin{matrix} D = 9^m 24^s 352 \\ T_E = 10^h 50^m 44^s \end{matrix}$	
"	$\begin{matrix} 10 & 34 & 39 \\ 11 & 42 & 36 \\ & 43 & 50 \\ & 45 & 16 \\ & 46 & 13 \end{matrix}$	$\begin{matrix} 9 & 24^{\circ}272 \\ 9 & 24^{\circ}539 \\ 24^{\circ}600 \\ 26^{\circ}043 \\ 23^{\circ}296 \end{matrix}$	$\begin{matrix} E \\ E \\ W \\ W \end{matrix}$					$\begin{matrix} 9 & 24^{\circ}548^* \\ & 24^{\circ}603^* \\ 26^{\circ}039 \\ 23^{\circ}287 \end{matrix}$	$\begin{matrix} \alpha \\ \gamma \\ \delta \\ \beta \end{matrix}$	$\begin{matrix} \text{at W, } Q = 1^{\circ}.689^* \\ \text{at E, } Q = 1^{\circ}.376 \end{matrix}$	$\begin{matrix} 0^{\circ}.044 \end{matrix}$	$\begin{matrix} D = 9^m 24^s 464 \\ T_E = 11^h 13^m 9^s \end{matrix}$	
	$\begin{matrix} 11 & 44 & 29 \end{matrix}$	$\begin{matrix} 9 & 24^{\circ}620 \end{matrix}$											

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

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*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction R		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1883 • March 17	$h$ $m$ $s$ 10 32 22 33 30 35 44 36 42	$m$ $s$ 9 31' 920 31' 929 33' 442 30' 690	E E W W	$s$ +0' 294 at 11 <sup>h</sup> 10 <sup>m</sup>		$m$ $s$ 9 31' 931* 31' 934* 33' 436 30' 680	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 713^s$ at E, $Q = 1' 378$	+ $s$ 0' 063	$D = 9\ 32' 075$ $T_E = 10\ 50\ 50$				
"	10 34 35 11 42 25 43 47 45 19 46 11 11 44 26	9 31' 995 9 33' 990 30' 572 33' 787 31' 000 9 32' 337	E E W W			9 34' 000 30' 575 33' 783 30' 991	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 713$ at E, $Q = 1' 396$	0' 050	$D = 9\ 32' 172$ $T_E = 11\ 10\ 40$				
March 18	10 32 53 34 5 36 11 37 13	9 41' 359 37' 947 41' 109 38' 376	E E W W			$s$ +0' 310 at 11 <sup>h</sup> 10 <sup>m</sup>		9 41' 370 37' 952 41' 103 38' 365	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 709$ at E, $Q = 1' 369$	0' 037	$D = 9\ 39' 780$ $T_E = 10\ 50\ 55$		
"	10 35 6 11 42 57 44 7 45 11 46 12 11 44 37	9 39' 698 9 41' 729 38' 304 41' 484 38' 712 9 40' 057	E E W W					9 41' 738 38' 306 41' 481 38' 704	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 716$ at E, $Q = 1' 389$	0' 035	$D = 9\ 39' 890$ $T_E = 11\ 12\ 21$		
March 19	10 32 24 35 11 36 12 37 12	9 47' 119 47' 109 48' 606 45' 844	E E W W					$s$ +0' 311 at 11 <sup>h</sup> 10 <sup>m</sup>		9 47' 134* 47' 109* 48' 601 45' 834	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 701^s$ at E, $Q = 1' 383$	0' 048	$D = 9\ 47' 252$ $T_E = 10\ 51\ 1$
"	10 35 15 11 43 25 44 41 46 11 47 11 11 45 22	9 47' 170 9 49' 173 45' 777 48' 980 46' 200 9 47' 533	E E W W							9 49' 183 45' 780 48' 976 46' 191	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1' 701$ at E, $Q = 1' 393$	0' 051	$D = 9\ 47' 362$ $T_E = 11\ 12\ 27$

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Fyzabad (E) and Jubbulpore (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1883 March 20	$\begin{matrix} h & m & s \\ 10 & 32 & 27 \end{matrix}$	$\begin{matrix} m & s \\ 9 & 56.293 \end{matrix}$	E	$\begin{matrix} s \\ +0.305 \\ \text{at} \\ 11^h 10^m \end{matrix}$		$\begin{matrix} m & s \\ 9 & 56.306 \end{matrix}$	$\alpha$	at W, $Q = 1.686$	+	D = $\begin{matrix} m & s \\ 9 & 54.757 \end{matrix}$
	$\begin{matrix} 34 & 11 \end{matrix}$	$\begin{matrix} 52.931 \end{matrix}$	E		$\begin{matrix} 52.935 \end{matrix}$	$\gamma$	at E, $Q = 1.390$	$\begin{matrix} s \\ 0.054 \end{matrix}$	$T_E = \begin{matrix} h & m & s \\ 10 & 51 & 6 \end{matrix}$	
	$\begin{matrix} 36 & 0 \end{matrix}$	$\begin{matrix} 56.125 \end{matrix}$	W		$\begin{matrix} 56.120 \end{matrix}$	$\delta$				
	$\begin{matrix} 37 & 11 \end{matrix}$	$\begin{matrix} 53.350 \end{matrix}$	W		$\begin{matrix} 53.339 \end{matrix}$	$\beta$				
	$\begin{matrix} 10 & 34 & 57 \end{matrix}$	$\begin{matrix} 9 & 54.675 \end{matrix}$								
"	$\begin{matrix} 11 & 43 & 1 \end{matrix}$	$\begin{matrix} 9 & 54.999 \end{matrix}$	E			$\begin{matrix} 9 & 55.008^* \end{matrix}$	$\alpha$	at W, $Q = 1.686^*$		D = $\begin{matrix} m & s \\ 9 & 54.871 \end{matrix}$
	$\begin{matrix} 44 & 24 \end{matrix}$	$\begin{matrix} 54.955 \end{matrix}$	E			$\begin{matrix} 54.957^* \end{matrix}$	$\gamma$		$\begin{matrix} s \\ 0.048 \end{matrix}$	$T_E = \begin{matrix} h & m & s \\ 11 & 13 & 31 \end{matrix}$
	$\begin{matrix} 45 & 26 \end{matrix}$	$\begin{matrix} 56.467 \end{matrix}$	W			$\begin{matrix} 56.464 \end{matrix}$	$\delta$	at E, $Q = 1.387$		
	$\begin{matrix} 46 & 24 \end{matrix}$	$\begin{matrix} 53.699 \end{matrix}$	W			$\begin{matrix} 53.691 \end{matrix}$	$\beta$			
	$\begin{matrix} 11 & 44 & 49 \end{matrix}$	$\begin{matrix} 9 & 55.030 \end{matrix}$								

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$
				Deduced $R$	Interpolated $R_1$	Reduced Clock Difference $d_1$				
1883 March 28	$\begin{matrix} h & m & s \\ 11 & 41 & 43 \end{matrix}$	$\begin{matrix} m & s \\ 16 & 7.464 \end{matrix}$	E			$\begin{matrix} m & s \\ 16 & 7.463^* \end{matrix}$	$\alpha$	at W, $Q = 1.580^*$	+	D = $\begin{matrix} m & s \\ 16 & 7.479 \end{matrix}$
	$\begin{matrix} 43 & 11 \end{matrix}$	$\begin{matrix} 7.452 \end{matrix}$	E			$\begin{matrix} 7.452^* \end{matrix}$	$\gamma$	at E, $Q = 1.405$	$\begin{matrix} s \\ 0.032 \end{matrix}$	$T_E = \begin{matrix} h & m & s \\ 11 & 58 & 32 \end{matrix}$
	$\begin{matrix} 44 & 56 \end{matrix}$	$\begin{matrix} 8.925 \end{matrix}$	W			$\begin{matrix} 8.926 \end{matrix}$	$\delta$			
	$\begin{matrix} 45 & 46 \end{matrix}$	$\begin{matrix} 6.115 \end{matrix}$	W			$\begin{matrix} 6.116 \end{matrix}$	$\beta$			
	$\begin{matrix} 11 & 43 & 54 \end{matrix}$	$\begin{matrix} 16 & 7.489 \end{matrix}$		$\begin{matrix} s \\ -0.041 \\ \text{at} \\ 12^h 14^m \end{matrix}$						
"	$\begin{matrix} 12 & 42 & 45 \end{matrix}$	$\begin{matrix} 16 & 7.409 \end{matrix}$	E			$\begin{matrix} 16 & 7.408^* \end{matrix}$	$\alpha$	at W, $Q = 1.580^*$		D = $\begin{matrix} m & s \\ 16 & 7.467 \end{matrix}$
	$\begin{matrix} 44 & 11 \end{matrix}$	$\begin{matrix} 7.405 \end{matrix}$	E			$\begin{matrix} 7.405^* \end{matrix}$	$\gamma$		$\begin{matrix} s \\ 0.041 \end{matrix}$	$T_E = \begin{matrix} h & m & s \\ 12 & 17 & 23 \end{matrix}$
	$\begin{matrix} 45 & 26 \end{matrix}$	$\begin{matrix} 8.883 \end{matrix}$	W			$\begin{matrix} 8.884 \end{matrix}$	$\delta$	at E, $Q = 1.395$		
	$\begin{matrix} 45 & 55 \end{matrix}$	$\begin{matrix} 6.093 \end{matrix}$	W			$\begin{matrix} 6.094 \end{matrix}$	$\beta$			
	$\begin{matrix} 12 & 44 & 34 \end{matrix}$	$\begin{matrix} 16 & 7.448 \end{matrix}$								

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference d and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of d to $t_E$ by Relative Rate Correction R		Pen Equation, Q, at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences D at Epochs by E Clock $T_E$				
				Deduced R	Interpolated $R_1$	Reduced Clock Difference $d_1$								
1888 March 29	$h \quad m \quad s$ 11 42 26 43 38 45 50 46 45	$m \quad s$ 16 6.702 6.691 8.155 5.383	E E W W	$s$ -0.074 at 12 <sup>h</sup> 28 <sup>m</sup>		$m \quad s$ 16 6.699* 6.690* 8.156 5.386	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.570^*$  at E, $Q = 1.385$	+ $s$ 0.038	$D = 16 \ 6.714$  $T_E = 11 \ 59 \ 58$				
"	11 44 40 13 9 22 10 16 11 48 12 30	16 6.733 16 8.135 5.017 8.063 5.294	E E W W			16 8.133 5.016 8.064 5.296	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.559$  at E, $Q = 1.384$	0.053	$D = 16 \ 6.692$  $T_E = 12 \ 18 \ 24$				
	13 10 59	16 6.627												
March 30	11 41 35 42 48 44 49 45 44	16 7.264 4.095 7.199 4.409	E E W W			$s$ -0.007 at 12 <sup>h</sup> 13 <sup>m</sup>		16 7.264 4.095 7.199 4.409	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.584$  at E, $Q = 1.395$	0.062	$D = 16 \ 5.740$  $T_E = 11 \ 58 \ 10$		
"	11 43 44 12 41 20 41 45 43 24 44 15	16 5.742 16 7.256 4.127 7.161 4.394	E E W W					16 7.256 4.127 7.161 4.394	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.565$  at E, $Q = 1.384$	0.043	$D = 16 \ 5.738$  $T_E = 12 \ 17 \ 56$		
	12 42 41	16 5.735												
March 31	11 41 50 43 11 44 47 45 44	16 6.753 3.538 6.605 3.841	E E W W					$s$ -0.045 at 12 <sup>h</sup> 14 <sup>m</sup>		16 6.751 3.537 6.606 3.842	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.607$  at E, $Q = 1.382$	0.040	$D = 16 \ 5.174$  $T_E = 11 \ 57 \ 0$
"	11 43 53 12 42 50 43 33 45 3 45 30	16 5.184 16 6.706 3.520 6.557 3.772	E E W W							16 6.705 3.520 6.558 3.773	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1.592$  at E, $Q = 1.392$	0.027	$D = 16 \ 5.159$  $T_E = 12 \ 17 \ 39$
	12 44 14	16 5.139												

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Fyzabad (E) and Agra (W).*

Astronomical Date	Observed Hour at E, Mean = $t_E$	Observed Clock Difference $d$ and Mean	Signals transmitted, from	Relative Hourly Clock Rate Correction at given Epochs by E Clock		Reduction of $d$ to $t_E$ by Relative Rate Correction $R$		Pen Equation, $Q$ , at E, $Q = \frac{-\beta + \delta}{2}$ at W, $Q = \frac{\alpha - \gamma}{2}$	Retardation = $\frac{\beta + \delta}{4}$ minus $\frac{\alpha + \gamma}{4}$	Deduced Clock Differences $D$ at Epochs by E Clock $T_E$			
				Deduced $R$	Interpolated $R_1$	Reduced Clock Difference $d_1$							
1888 April 3	$h \quad m \quad s$ 11 42 15 43 12 45 48 46 49	$m \quad s$ 16 4'018 0'976 1'124 3'904	E E W W	$s$ -0'095 at 12 <sup>h</sup> 13 <sup>m</sup>		$m \quad s$ 16 4'014 0'974 1'126 3'908	$\alpha$ $\gamma$ $\beta$ $\delta$	at W, $Q = 1'520$ at E, $Q = 1'391$	+ $s$ 0'011	$D = 16^m 2'483$ $T_E = 1^h 58^m 56^s$			
"	11 44 31 12 39 39 41 24 42 50 44 24	16 2'506 16 3'839 2'387 2'378 1'054	W E E W			16 3'835 2'386* 2'379* 1'058	$\delta$ $\alpha$ $\gamma$ $\beta$	at W, $Q = 1'520^*$ at E, $Q = 1'389$	0'032	$D = 16^m 2'453$ $T_E = 12^h 17^m 55^s$			
	12 42 4	16 2'415											
April 4	11 42 40 43 20 45 14 45 55	16 2'893 15 59'715 16 2'767 15 59'999	E E W W			$s$ -0'077 at 12 <sup>h</sup> 13 <sup>m</sup>		16 2'891 15 59'714 16 2'768 0'001	$\alpha$ $\gamma$ $\delta$ $\beta$	at W, $Q = 1'589$ at E, $Q = 1'383$	0'041	$D = 16^m 1'325$ $T_E = 11^h 59^m 5^s$	
"	11 44 17 12 38 43 42 13 42 59 45 0	16 1'344 16 2'688 1'229 1'236 15 59'927	W E E W					16 2'683 1'229* 1'237* 15 59'931	$\delta$ $\alpha$ $\gamma$ $\beta$	at W, $Q = 1'589^*$ at E, $Q = 1'376$	0'037	$D = 16^m 1'301$ $T_E = 12^h 18^m 1^s$	
	12 42 14	16 1'270											

\* Owing to irregular Chronograph Rate, the Pen Equation has been determined and applied graphically before reading off the signals.

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heavyside.*

OBSERVED WITH TELESCOPE No. 2.												
BY STARS OF	AT JALPAIGURI						AT JUBBULPORE					
	December 17, 1882			December 18*, 1882			March 7, 1883			March 8, 1883		
	Star	Declination	Equation S - H	Star	Declination	Equation S - H	Star	Declination	Equation S - H	Star	Declination	Equation S - H
NORTH ASPECT	8206	+ 30 41	+ 0.01	8261	+ 45 46	+ 0.05	1935	+ 37 58	- 0.04	1772	+ 29 9	+ 0.03
	8237	+ 43 41	- 0.05	4	+ 28 27	- 0.04	2001	+ 29 32	+ 0.05	1804	+ 49 46	- 0.06
	8256	+ 28 43	0.00	52	+ 38 2	+ 0.04	2014	+ 35 11	+ 0.08	1850	+ 32 5	- 0.06
	8261	+ 45 46	- 0.08	100	+ 43 45	+ 0.01	2058	+ 25 6	- 0.08	1935	+ 37 58	- 0.14
	8284	+ 28 11	- 0.07	109	+ 29 6	+ 0.07	2081	+ 46 46	+ 0.13	1942	+ 38 30	- 0.01
	4	+ 28 27	+ 0.19	166	+ 30 13	- 0.02	2097	+ 28 18	+ 0.07	2001	+ 29 32	- 0.08
	16	+ 45 25	+ 0.04	963	+ 40 30	+ 0.01				2014	+ 35 11	+ 0.05
	52	+ 38 2	+ 0.04	980	+ 26 26	- 0.09				2058	+ 25 6	0.00
	100	+ 43 45	- 0.02	989	+ 26 48	+ 0.02				2905	+ 32 56	+ 0.12
	109	+ 29 6	- 0.06	1017	+ 33 48	+ 0.09				2965	+ 29 11	- 0.14
	197	+ 47 13	+ 0.06	1063	+ 49 27	+ 0.07				2965	+ 29 11	- 0.10
	235	+ 50 55	- 0.01	1071	+ 47 35	+ 0.04				3000	+ 28 42	+ 0.17
	245	+ 48 3	+ 0.06	1105	+ 42 12	0.00				3056	+ 32 52	+ 0.09
	963	+ 40 30	+ 0.09	1123	+ 37 12	- 0.10				3068	+ 32 43	- 0.02
				1132	+ 33 35	+ 0.14				3079	+ 24 55	- 0.09
				1138	+ 31 55	- 0.04				3088	+ 28 22	+ 0.09
				1219	+ 39 40	+ 0.14				3097	+ 38 55	+ 0.01
				1228	+ 35 27	+ 0.01				3162	+ 37 18	+ 0.06
				1269	+ 37 44	+ 0.05				3183	+ 25 40	- 0.02
				1291	+ 40 11	+ 0.08				3194	+ 25 41	- 0.05
										3255	+ 28 53	0.00
										3327	+ 24 1	- 0.06
										3341	+ 46 34	- 0.08
										3358	+ 54 37	+ 0.10
SOUTH ASPECT	Mean (S <sub>N</sub> - H <sub>N</sub> )		+ 0.014 ± 0.013			+ 0.027 ± 0.010			+ 0.035 ± 0.021			- 0.008 ± 0.011
	8296	+ 21 1	+ 0.16	8337	+ 26 16	+ 0.07	1893	+ 9 29	+ 0.08	1742	+ 23 58	+ 0.07
	8324	+ 24 30	+ 0.03	8370	+ 12 45	+ 0.11	1907	+ 12 48	+ 0.10	1792	+ 16 28	0.00
	8354	+ 7 50	+ 0.16	36	+ 8 10	+ 0.06	1925	+ 22 24	+ 0.20	1907	+ 12 48	+ 0.03
	8370	+ 12 45	+ 0.02	63	+ 15 36	+ 0.11	1958	+ 14 47	- 0.09	1925	+ 22 24	+ 0.05
	26	+ 14 32	+ 0.03	73	+ 12 50	- 0.05	1971	+ 23 8	+ 0.10	1958	+ 14 47	- 0.12
	36	+ 8 10	- 0.09	82	+ 13 40	0.00	1987	+ 22 56	0.00	1971	+ 23 8	+ 0.08
	63	+ 15 36	+ 0.03	130	+ 19 39	- 0.04	2038	+ 21 11	0.00	1987	+ 22 56	- 0.09
	73	+ 12 50	+ 0.13	142	+ 12 44	+ 0.04	2047	+ 22 34	- 0.01	2038	+ 21 11	+ 0.11
	82	+ 13 40	+ 0.03	957	+ 24 48	0.00				2047	+ 22 34	- 0.01
	130	+ 19 39	+ 0.12	989	+ 20 37	- 0.05				2937	+ 21 53	- 0.03
	142	+ 12 44	- 0.07	1053	+ 20 23	- 0.03				3017	+ 20 25	- 0.10
	178	+ 23 59	+ 0.06	1084	+ 10 56	+ 0.05				3031	+ 14 38	+ 0.23
	215	+ 23 38	+ 0.11	1095	+ 24 4	- 0.06				3111	+ 11 8	+ 0.16
	223	+ 16 19	- 0.02	1151	+ 24 6	+ 0.09				3122	+ 12 3	- 0.11
	949	+ 3 37	- 0.05	1166	+ 23 45	- 0.01				3129	+ 18 31	+ 0.17
	957	+ 24 48	+ 0.15	1192	+ 25 14	+ 0.12				3138	+ 21 46	+ 0.01
				1206	+ 16 55	- 0.05				3209	+ 17 6	0.00
				1238	+ 22 52	+ 0.05				3227	+ 9 34	+ 0.04
				1257	+ 21 46	+ 0.01				3270	+ 13 11	+ 0.15
				1279	+ 26 10	- 0.05				3278	+ 16 58	- 0.03
										3299	+ 13 50	+ 0.21
										3312	+ 10 25	- 0.04
										3318	+ 20 44	+ 0.13
										3380	+ 6 30	+ 0.15
	Mean (S <sub>S</sub> - H <sub>S</sub> )		+ 0.050 ± 0.014			+ 0.019 ± 0.009			+ 0.048 ± 0.021			+ 0.044 ± 0.014

\* The Bohnenberger eye-piece of Telescope No. 1 was used on this day.

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

OBSERVED WITH TELESCOPE No. 2.									
By STARS OF	At JUBBULPORE			At AGRA					
	March 9, 1883			April 7, 1883			April 8*, 1883		
	Star	Declination	Equation S - H	Star	Declination	Equation S - H	Star	Declination	Equation S - H
NORTH ASPECT	1824	+ 39 30	+ 0.06	2798	+ 42 23	- 0.03	3666	+ 26 57	- 0.04
	1850	+ 32 5	+ .05	2815	+ 28 17	- .01	3735	+ 26 7	- .06
	1863	+ 27 35	+ .01	2860	+ 36 50	- .03	3751	+ 26 8	+ .03
	1875	+ 31 41	+ .08	2905	+ 32 56	- .03	3784	+ 38 52	+ .05
	1935	+ 37 58	+ .03	2908	+ 29 11	+ .02	3811	+ 36 57	- .08
	1942	+ 38 30	- .05	3727	+ 28 29	- .07	3851	+ 32 11	- .06
				3785	+ 26 7	- .01	3868	+ 44 7	+ .01
				3751	+ 26 8	- .15	3905	+ 39 59	+ .05
				3765	+ 39 50	- .01	3937	+ 28 26	.00
				3784	+ 38 52	+ .04	3952	+ 44 17	+ .05
				3811	+ 36 57	- .03	3973	+ 42 23	+ .04
				3851	+ 32 11	+ .08	3998	+ 35 36	.00
				3868	+ 44 7	- .07	4010	+ 38 34	- .03
				3905	+ 39 59	+ .02	4057	+ 43 42	- .03
				3937	+ 28 26	.00	4100	+ 27 57	+ .04
				3952	+ 44 17	+ .05	4139	+ 26 40	- .10
				3973	+ 42 23	- .01	4169	+ 26 30	+ .05
				3998	+ 35 36	+ .09	4178	+ 26 30	- .05
	Mean ( $S_N - H_N$ )		+ 0.032 ± 0.013			- 0.008 ± 0.009			- 0.007 ± 0.008
SOUTH ASPECT	1958	+ 14 47	+ 0.01	2759	+ 18 1	- 0.02	3687	+ 8 8	+ 0.11
	1971	+ 23 8	- .02	2778	+ 9 33	+ .02	3720	+ 4 12	+ .09
	1987	+ 22 56	+ .09	2788	+ 21 7	+ .01	3776	+ 20 48	+ .08
	2002	+ 22 32	- .01	2833	+ 24 32	+ .11	3795	+ 2 31	+ .06
	2038	+ 21 11	+ .15	2888	+ 15 43	+ .18	3824	+ 15 2	+ .11
	2047	+ 22 34	- .06	2925	+ 20 0	+ .09	3831	+ 20 46	+ .07
				2937	+ 21 53	+ .04	3843	+ 13 57	+ .08
				3776	+ 20 48	- .07	3877	+ 11 11	+ .03
				3795	+ 2 31	- .01	3886	+ 17 5	+ .15
				3824	+ 15 2	+ .04	3894 <sub>1</sub>	+ 3 40	+ .07
				3831	+ 20 46	+ .08	3894 <sub>2</sub>	+ 3 40	+ .02
				3843	+ 13 57	.00	3915	+ 19 3	+ .03
				3877	+ 11 11	+ .15	3932	+ 17 27	+ .09
				3886	+ 17 5	.00	3964	+ 22 1	+ .06
				3894	+ 3 40	+ .06	3979	+ 8 55	+ .03
				3915	+ 19 3	+ .08	3990	+ 20 53	+ .08
				3932	+ 17 27	- .06	4039	+ 4 8	+ .02
				3964	+ 22 1	+ .07	4081	+ 14 10	+ .02
							4114	+ 10 55	+ .01
							4125	+ 15 33	+ .05
	Mean ( $S_S - H_S$ )		+ 0.027 ± 0.022			+ 0.043 ± 0.011			+ 0.063 ± 0.006

\* The Bohnenberger eye-piece of Telescope No. 1 was used on this day.

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Major Strahan and Lieut.-Colonel Campbell.*

BY STARS OF	OBSERVED WITH TELESCOPE NO. 1.						OBSERVED WITH TELESCOPE NO. 2.					
	At CALCUTTA						At JALPAIGURI					
	November 17, 1882			November 19, 1882			December 24, 1882			December 25, 1882		
	Star	Declination	Equation S - C	Star	Declination	Equation S - C	Star	Declination	Equation S - C	Star	Declination	Equation S - C
NORTH ASPECT	614	+ 53 55	+ 0'12	727	+ 40 50	+ 0'14	52	+ 38 2	- 0'05	109	+ 29 6	+ 0'05
	624	+ 32 43	- '17	752	+ 31 15	- '10	100	+ 43 45	+ '01	166	+ 30 13	- '12
	647	+ 25 6	+ '09	761	+ 38 35	- '05	109	+ 29 6	- '09	197	+ 47 13	- '03
	656	+ 34 24	- '12	786	+ 34 9	+ '02	166	+ 30 13	+ '04	235	+ 50 55	- '09
	675	+ 29 43	+ '12	813	+ 26 32	- '22	197	+ 47 13	- '08	245	+ 48 3	- '01
	691	+ 32 47	- '14	861	+ 28 44	- '10	235	+ 50 55	- '09	256	+ 26 35	- '03
	727	+ 40 50	- '14	904	+ 31 29	- '21	245	+ 48 3	- '03	283	+ 40 43	+ '02
	752	+ 31 15	- '20	936	+ 31 56	- '08	256	+ 26 35	- '12	299	+ 29 3	- '04
	761	+ 38 35	+ '11	957	+ 24 48	- '12	283	+ 40 43	- '07			
	786	+ 34 9	- '13	963	+ 40 30	+ '08	299	+ 29 3	- '03			
	796	+ 24 7	+ '09									
	936	+ 31 56	+ '09									
	957	+ 24 48	+ '02									
	963	+ 40 30	- '19									
	980	+ 26 26	+ '06									
	989	+ 26 48	- '16									
	993	+ 42 3	+ '11									
	1008	+ 38 51	- '16									
	Mean ( $S_N - C_N$ )		- 0'033 ± 0'021			- 0'064 ± 0'025			- 0'051 ± 0'011			- 0'031 ± 0'013
SOUTH ASPECT	561	+ 10 27	+ 0'18	771	+ 17 9	+ 0'02	26	+ 14 32	- 0'02	36	+ 8 10	- 0'04
	593	+ 23 1	- '15	780	+ 14 29	+ '03	36	+ 8 10	+ '14	63	+ 15 36	+ '18
	707	+ 19 19	+ '08	796	+ 24 7	+ '01	73	+ 12 50	+ '12	73	+ 12 50	- '03
	741	+ 9 9	+ '09	808	+ 21 26	+ '09	82	+ 13 40	- '06	82	+ 13 40	+ '02
	771	+ 17 9	- '08	845	+ 9 36	+ '05	130	+ 19 39	+ '09	130	+ 19 39	- '06
	780	+ 14 29	+ '05	920	+ 21 10	+ '01	142	+ 12 44	- '03	142	+ 12 44	+ '08
	808	+ 21 26	- '04	949	+ 3 37	+ '06	178	+ 23 59	- '07	178	+ 23 59	'00
	949	+ 3 37	- '04	986	+ 19 17	- '18	215	+ 23 38	- '07	215	+ 23 38	+ '06
	1023	+ 26 39	+ '11				223	+ 16 19	+ '12	223	+ 16 19	- '10
	1034	+ 20 43	- '12				274	+ 5 51	'09	274	+ 5 51	- '07
	1057	+ 8 37	+ '01									
	1064	+ 18 21	- '14									
	1087	+ 12 32	+ '06									
	1095	+ 24 4	- '12									
	1107	+ 22 50	+ '18									
	1119	+ 16 10	- '08									
	Mean ( $S_S - C_S$ )		- 0'001 ± 0'019			+ 0'011 ± 0'020			+ 0'022 ± 0'018			+ 0'004 ± 0'018



*Between Majors Strahan and Heaviside.*

SEASON	BY STARS OF NORTH ASPECT						BY STARS OF SOUTH ASPECT					
	Astronomical Date	Telescope in use	Mean Value of Equation $S_N - H_N$	Combination Weight	General Mean $S_N - H_N$		Astronomical Date	Telescope in use	Mean Value of Equation $S_S - H_S$	Combination Weight	General Mean $S_S - H_S$	
1882-83	1882 December 17	No. 2	+ 0.014	59	+ 0.022		1882 December 17	No. 2	+ 0.050	51	+ 0.028	
	" 18*	" 2	+ 0.027	100			" 18*	" 2	+ 0.019	123		
	1883 March 7	No. 2	+ 0.035	23	+ 0.012		1883 March 7	No. 2	+ 0.048	23	+ 0.041	
	" 8	" 2	- 0.008	83			" 8	" 2	+ 0.044	51		
	" 9	" 2	+ 0.032	59			" 9	" 2	+ 0.027	21		
	April 7	No. 2	- 0.008	123	- 0.007		April 7	No. 2	+ 0.043	83	+ 0.058	
	" 8*	" 2	- 0.007	156			" 8*	" 2	+ 0.063	278		

\* The Bohnenberger eye-piece of Telescope No. 1 was used on these days.

*Between Major Strahan and Lieut.-Colonel Campbell.*

SEASON	BY STARS OF NORTH ASPECT						BY STARS OF SOUTH ASPECT					
	Astronomical Date	Telescope in use	Mean Value of Equation $S_N - C_N$	Combination Weight	General Mean $S_N - C_N$		Astronomical Date	Telescope in use	Mean Value of Equation $S_S - C_S$	Combination Weight	General Mean $S_S - C_S$	
1882-83	1882 November 17	No. 1	- 0.033	23	- 0.043		1882 November 17	No. 1	- 0.001	28	+ 0.009	
	" 19	" 1	- 0.064	16			" 19	" 1	+ 0.011	25		
	December 24	" 2	- 0.051	83			December 24	" 2	+ 0.022	31		
	" 25	" 2	- 0.031	59			" 25	" 2	+ 0.004	31		

*Final Values of the Equation adopted.*

The observations for the first seven Arcs were taken between the 1st of December 1882 and the 21st of March 1883, and the values employed for these Arcs are

$$S_N - H_N = + 0.017, \text{ and } S_S - H_S = + 0.035.$$

The observations for the eighth Arc were taken between the 27th of March and the 5th of April 1883, and the values employed for this Arc are

$$S_N - H_N = - 0.007, \text{ and } S_S - H_S = + 0.058.$$

For the nights on which Lieut.-Colonel Campbell observed, the values employed are

$$S_N - C_N = - 0.043, \text{ and } S_S - C_S = + 0.009.$$

In these equations the general symbols  $S - H$  and  $S - C$  signify quantities which must be added to times observed by Major Heaviside and Lieut.-Colonel Campbell respectively, before they are compared with those observed by Major Strahan.

Of Lieut.-Colonel Campbell and Majors Strahan and Heaviside, Season 1882-83.

ARO JALPAIGURI-FYZABAD									ARO JALPAIGURI-CALCUTTA					
Strahan at Jalpaiguri			Campbell at Fyzabad			Heaviside at Fyzabad			Strahan at Jalpaiguri			Heaviside at Calcutta		
Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed
1040	+ 0 <sup>s</sup> .12	N	1040	+ 0 <sup>s</sup> .16	N	1040	+ 0 <sup>s</sup> .03	N	1444	+ 0 <sup>s</sup> .05	N	1527	- 0 <sup>s</sup> .04	S
	+ '03	"		+ '12	"		- '01	"		+ '10	"		- '00	"
	+ '05	"		+ '11	"	1192	- '07	S		+ '06	"		- '03	"
	+ '03	"		+ '06	"		- '10	"		+ '04	"		- '02	"
	+ '05	"	1192	- '13	S		- '07	"		+ '08	"		- '10	"
	- '01	"		- '05	"		- '08	"		+ '05	"	1637	- '00	"
	+ '06	"		+ '03	"	1497	- '00	"	1648	- '00	S		- '13	"
1192	- '05	S	1497	+ '09	N		+ '01	"		- '02	"		- '08	"
	- '03	"		+ '01	S		+ '04	N		- '04	"		- '03	"
	- '05	"	1528	+ '15	N		- '09	S		- '01	"		- '13	"
	+ '02	"	1648	- '01	S	1528	+ '01	"		- '01	"	1714	- '01	N
	+ '03	"	1681	+ '15	N		- '00	N	1754	- '07	"		+ '13	"
	- '06	"	2058	- '03	S		+ '02	"		- '05	"		+ '01	"
	- '01	"		- '10	"		+ '14	"		- '10	"		+ '05	"
1497	- '08	"		- '04	"	1648	- '03	S		- '05	"	1742	- '07	S
	- '01	"	2097	+ '10	N		+ '05	"		- '01	"		- '08	"
	+ '02	"		+ '16	"		- '06	"		- '07	"		- '01	"
	- '00	"		+ '20	"		- '01	"	2001	+ '01	"		- '03	"
	- '00	"	2178	+ '01	"	2058	- '03	"		- '02	"	1938	- '03	"
1648	- '02	"		+ '09	"		- '07	"		+ '06	"		+ '08	"
	- '10	"		+ '15	"		+ '06	"		+ '02	"		- '10	"
	- '04	"	2194	- '02	S		- '03	"		- '02	"		- '03	"
	- '02	"		- '05	"	2097	+ '18	N		- '00	"		+ '01	"
	- '01	"		- '00	"		+ '18	"	2133	- '04	"	1987	+ '04	N
2097	+ '05	N		- '04	"		+ '05	"		- '10	"		+ '10	"
	+ '04	"	Mean	+ 0 <sup>s</sup> .045		2178	+ '09	"		- '04	"		+ '10	"
	+ '03	"		± 0 <sup>s</sup> .012			+ '09	"		- '06	"		+ '01	"
	- '02	"					+ '09	"		- '03	"		+ '08	"
	- '01	"				2194	- '13	S	Mean	- 0 <sup>s</sup> .009		2047	+ '02	"
	+ '02	"					- '08	"		± 0 <sup>s</sup> .007			+ '04	"
	+ '13	"					+ '03	"				Mean	- 0 <sup>s</sup> .008	
	+ '13	"					- '11	"					± 0 <sup>s</sup> .008	
2178	+ '02	"				Mean	+ 0 <sup>s</sup> .003							
	- '02	S					± 0 <sup>s</sup> .010							
	- '03	"												
	- '07	"												
	- '00	"												
	+ '02	"												
Mean	+ 0 <sup>s</sup> .006													
	± 0 <sup>s</sup> .006													

NOTE.—The symbol, N - S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.

*Of Majors Strahan and Heaviside, Season 1882-83.*

ARC CHITTAGONG-JALPAIGURI			ARC CHITTAGONG-CALCUTTA			ARC CALCUTTA-FYZABAD											
Heaviside at Chittagong			Strahan at Jalpaiguri			Heaviside at Chittagong			Strahan at Calcutta			Heaviside at Calcutta			Strahan at Fyzabad		
Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed
2047	+ 0.04	N	2133	+ 0.06	S	2313	+ 0.05	N	2313	+ 0.02	N	2937	+ 0.01	S	2841	0.00	N
	+ 0.03	"		0.00	"		+ 0.08	"		+ 0.12	"		0.00	"		+ 0.09	"
	+ 0.10	"		- 0.01	"		+ 0.10	"		- 0.01	"		- 0.03	"		0.00	"
	+ 0.02	"		- 0.02	"		+ 0.05	"		+ 0.08	"		0.00	"		- 0.02	"
	- 0.02	"		- 0.03	"		+ 0.11	"		+ 0.15	"		- 0.10	"		+ 0.05	"
2233	+ 0.02	"	2275	- 0.05	"		+ 0.01	"		- 0.10	"	3017	+ 0.01	N		+ 0.07	"
	- 0.05	"		- 0.03	"	2460	+ 0.01	S	2460	+ 0.10	S		- 0.01	S	3000	- 0.05	S
	+ 0.03	"		- 0.02	"		- 0.03	"		+ 0.07	"		+ 0.09	N		+ 0.05	"
	+ 0.02	"		0.00	"		+ 0.04	"		- 0.04	"		+ 0.03	"		- 0.01	"
	+ 0.09	"		- 0.07	"		+ 0.05	"		- 0.05	"		+ 0.09	"		- 0.07	"
	+ 0.05	"		- 0.03	"		- 0.01	"		+ 0.03	"		+ 0.03	"		+ 0.02	"
2544	- 0.10	S	2493	- 0.05	"		- 0.06	"		- 0.04	"	3355	+ 0.04	"		+ 0.02	"
	+ 0.02	"		+ 0.01	"	2700	+ 0.10	N	2700	+ 0.04	N		+ 0.06	"	3309	- 0.08	"
	- 0.05	"	2617	- 0.04	"		- 0.02	"		0.00	"		+ 0.01	"		+ 0.02	"
	- 0.03	"		- 0.04	"		+ 0.08	"		+ 0.03	"		+ 0.08	"		0.00	"
	- 0.07	"		0.00	"		- 0.01	"		+ 0.06	"		+ 0.07	"		- 0.05	"
	+ 0.04	"		- 0.05	"		+ 0.11	"		+ 0.03	"		- 0.14	S		- 0.02	"
2676	- 0.05	"		- 0.02	"		+ 0.04	"		+ 0.14	"	3485	- 0.03	"		- 0.02	"
	- 0.11	"		- 0.07	"		+ 0.05	"		+ 0.01	"		0.00	"	3371	+ 0.06	N
	- 0.04	"	3088	+ 0.08	N	2788	+ 0.01	"	2788	+ 0.13	"		- 0.03	"		+ 0.01	"
	+ 0.02	"		+ 0.08	"		+ 0.06	"		+ 0.12	"		- 0.03	"		+ 0.05	"
	- 0.05	"		+ 0.15	"		+ 0.08	"		+ 0.02	"		- 0.09	"		+ 0.05	"
	+ 0.01	"		+ 0.07	"		+ 0.07	"		+ 0.02	"	3776	+ 0.01	N		- 0.02	"
2937	- 0.15	"		+ 0.05	"		+ 0.05	"		+ 0.15	"		+ 0.06	"	3751	+ 0.01	S
	- 0.03	"		+ 0.09	"		- 0.07	"		+ 0.08	"		0.00	"		- 0.09	"
	- 0.01	"	Mean	+ 0.002		3138	+ 0.02	S	3138	- 0.04	S		+ 0.06	"		0.00	"
	- 0.04	"		± 0.008			+ 0.04	"		- 0.04	"		+ 0.06	"		- 0.05	"
	- 0.06	"					- 0.05	"		+ 0.02	"	3842	- 0.02	S		- 0.05	"
	+ 0.03	"					- 0.02	"		- 0.03	"		+ 0.04	"	Mean	- 0.001	
3123	+ 0.08	N					- 0.03	"		+ 0.03	"		- 0.05	"		± 0.006	
	0.00	"					- 0.09	"		- 0.06	"		- 0.11	"			
3138	- 0.07	S				3246	- 0.02	"	3246	- 0.09	"	Mean	+ 0.004				
	- 0.10	"					0.00	"		+ 0.01	"		± 0.007				
	- 0.20	"					- 0.06	"		+ 0.04	"						
	+ 0.01	"					- 0.01	"		+ 0.10	"						
Mean	- 0.018						- 0.03	"		+ 0.01	"						
	± 0.008						- 0.05	"		+ 0.05	"						
						Mean	+ 0.018		Mean	+ 0.028							
							± 0.006			± 0.007							

NOTE.—The symbol, N - S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.

TABLE VII. ABSTRACT OF OBSERVED VALUES OF THE ABSOLUTE (N - S) EQUATIONS

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*Of Majors Strahan and Heaviside, Season 1882-83.*

ARC CALCUTTA-JUBBULPORE						ARC FYZABAD-JUBBULPORE						ARC FYZABAD-AGRA					
Heaviside at Calcutta			Strahan at Jubbulpore			Heaviside at Fyzabad			Strahan at Jubbulpore			Heaviside at Fyzabad			Strahan at Agra		
Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed	Star	Equation N - S	Aspect first observed
8117	$+0^{\circ}02$	N	8117	$+0^{\circ}03$	N	3371	$+0^{\circ}14$	N	3423	$+0^{\circ}07$	N	3797	$+0^{\circ}03$	S	3797	$+0^{\circ}02$	S
	$+0^{\circ}06$	"		$+0^{\circ}10$	"		$+0^{\circ}10$	"		$+0^{\circ}01$	"		$+0^{\circ}02$	"		$-0^{\circ}05$	"
	$+0^{\circ}07$	"		$+0^{\circ}10$	"		$+0^{\circ}07$	"		$+0^{\circ}03$	"		$+0^{\circ}02$	"		$+0^{\circ}01$	"
	$+0^{\circ}08$	"		$+0^{\circ}00$	"		$+0^{\circ}09$	"		$-0^{\circ}01$	"		$+0^{\circ}01$	"		$-0^{\circ}03$	"
	$+0^{\circ}10$	"		$+0^{\circ}05$	"		$+0^{\circ}09$	"		$+0^{\circ}11$	"		$+0^{\circ}00$	"		$-0^{\circ}02$	"
8138	$+0^{\circ}03$	S	8138	$+0^{\circ}06$	S		$+0^{\circ}05$	"	3511	$+0^{\circ}01$	"	4100	$+0^{\circ}00$	"	4100	$+0^{\circ}02$	"
	$-0^{\circ}05$	"		$-0^{\circ}03$	"		$+0^{\circ}04$	"		$+0^{\circ}08$	"		$-0^{\circ}01$	"		$-0^{\circ}07$	"
	$-0^{\circ}04$	"		$+0^{\circ}03$	"	3735	$+0^{\circ}08$	"		$+0^{\circ}02$	"		$-0^{\circ}01$	"		$+0^{\circ}08$	"
	$+0^{\circ}05$	"	3246	$-0^{\circ}02$	"		$+0^{\circ}06$	"		$+0^{\circ}03$	"		$-0^{\circ}03$	"		$-0^{\circ}02$	"
	$+0^{\circ}01$	"		$-0^{\circ}02$	"	3751	$-0^{\circ}09$	S		$+0^{\circ}08$	"		$-0^{\circ}05$	"		$-0^{\circ}02$	"
3246	$-0^{\circ}09$	"		$-0^{\circ}12$	"		$-0^{\circ}02$	"		$+0^{\circ}10$	"	4169	$+0^{\circ}05$	N	4169	$+0^{\circ}06$	N
	$-0^{\circ}03$	"		$+0^{\circ}05$	"		$-0^{\circ}06$	"	3842	$-0^{\circ}02$	S		$+0^{\circ}07$	"		$+0^{\circ}08$	"
	$-0^{\circ}05$	"		$-0^{\circ}04$	"		$-0^{\circ}09$	"		$+0^{\circ}10$	"		$+0^{\circ}08$	"		$+0^{\circ}17$	"
	$-0^{\circ}04$	"	3423	$-0^{\circ}15$	"		$-0^{\circ}04$	"		$-0^{\circ}08$	"		$+0^{\circ}13$	"		$+0^{\circ}08$	"
	$-0^{\circ}05$	"		$-0^{\circ}03$	"		$-0^{\circ}04$	"		$-0^{\circ}08$	"		$+0^{\circ}13$	"		$+0^{\circ}00$	"
	$-0^{\circ}12$	"		$-0^{\circ}02$	"	4100	$+0^{\circ}04$	"		$+0^{\circ}04$	"	4178	$+0^{\circ}09$	"		$+0^{\circ}03$	"
3423	$-0^{\circ}11$	"		$-0^{\circ}16$	"		$-0^{\circ}04$	"		$+0^{\circ}03$	"		$-0^{\circ}05$	S	4178	$-0^{\circ}09$	S
	$+0^{\circ}05$	"		$-0^{\circ}12$	"		$-0^{\circ}02$	"	4066	$+0^{\circ}08$	N		$+0^{\circ}02$	"		$-0^{\circ}04$	"
	$-0^{\circ}07$	"	3511	$+0^{\circ}11$	N		$-0^{\circ}11$	"		$+0^{\circ}06$	"		$+0^{\circ}01$	"		$-0^{\circ}07$	"
	$-0^{\circ}05$	"		$+0^{\circ}03$	"		$-0^{\circ}04$	"		$+0^{\circ}10$	"		$-0^{\circ}04$	"		$+0^{\circ}08$	"
	$-0^{\circ}08$	"		$+0^{\circ}08$	"		$-0^{\circ}06$	"		$+0^{\circ}22$	"		$-0^{\circ}02$	"		$-0^{\circ}02$	"
3511	$+0^{\circ}10$	N		$-0^{\circ}15$	"		$-0^{\circ}02$	"		$+0^{\circ}05$	"	4205	$+0^{\circ}13$	N		$-0^{\circ}07$	"
	$+0^{\circ}03$	"		$-0^{\circ}04$	"	4169	$+0^{\circ}02$	"		$+0^{\circ}13$	"		$+0^{\circ}15$	"	4205	$+0^{\circ}09$	N
	$+0^{\circ}01$	"	3776	$+0^{\circ}07$	"		$-0^{\circ}01$	"		$+0^{\circ}11$	"		$+0^{\circ}15$	"		$+0^{\circ}04$	"
	$+0^{\circ}09$	"		$+0^{\circ}16$	"	4181	$-0^{\circ}04$	"	4240	$-0^{\circ}04$	S		$+0^{\circ}08$	"		$+0^{\circ}12$	"
	$+0^{\circ}10$	"		$+0^{\circ}03$	"		$-0^{\circ}09$	"		$-0^{\circ}07$	"		$+0^{\circ}16$	"		$+0^{\circ}09$	"
3776	$+0^{\circ}10$	"		$+0^{\circ}02$	"		$+0^{\circ}01$	"		$+0^{\circ}07$	"		$+0^{\circ}19$	"		$+0^{\circ}02$	"
	$+0^{\circ}05$	"		$+0^{\circ}14$	"		$-0^{\circ}08$	"		$-0^{\circ}05$	"	4393	$+0^{\circ}11$	"		$+0^{\circ}07$	"
	$+0^{\circ}09$	"		$+0^{\circ}06$	"		$-0^{\circ}07$	"		$+0^{\circ}06$	"		$+0^{\circ}11$	"	4393	$-0^{\circ}03$	"
	$+0^{\circ}05$	"	Mean	$+0^{\circ}008$		4191	$+0^{\circ}10$	N		$-0^{\circ}11$	"		$+0^{\circ}11$	"		$+0^{\circ}08$	"
	$+0^{\circ}08$	"		$\pm 0^{\circ}011$			$+0^{\circ}14$	"	Mean	$+0^{\circ}037$			$+0^{\circ}09$	"	Mean	$+0^{\circ}020$	
	$+0^{\circ}10$	"					$+0^{\circ}16$	"		$\pm 0^{\circ}009$			$+0^{\circ}18$	"		$\pm 0^{\circ}008$	
Mean	$+0^{\circ}013$						$+0^{\circ}14$	"				4526	$-0^{\circ}06$	S			
	$\pm 0^{\circ}008$						$+0^{\circ}12$	"					$+0^{\circ}07$	"			
						4199	$+0^{\circ}13$	"					$-0^{\circ}03$	"			
							$+0^{\circ}11$	"					$-0^{\circ}01$	"			
						4205	$+0^{\circ}13$	"				Mean	$+0^{\circ}052$				
							$+0^{\circ}07$	"					$\pm 0^{\circ}008$				
							$+0^{\circ}15$	"									
							$+0^{\circ}13$	"									
							$+0^{\circ}15$	"									
						Mean	$+0^{\circ}034$										
							$\pm 0^{\circ}009$										

NOTE.—The symbol, N - S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl Equations $S_N - S_S = + 0^s.006$ $C_N - C_S = + 0^s.045$	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 4	1476	+ 37 17	N	<i>I. P. W.</i>	4 43 12.85	+ 1.32	14.17	N	<i>I. P. W.</i>	4 41 19.45	+ 1.89	21.34	- 1 52.83				
	1520	+ 32 59	N	<i>d</i> <i>c - 0.1</i>	50 33.08	+ 1.26	34.34	N	<i>d</i> <i>c - 0.7</i>	48 39.62	+ 1.87	41.49	52.85				
	1558	+ 41 5	N	<i>b + 0.8</i> <i>a - 26.9</i>	59 29.30	+ 1.38	30.68	N	<i>b + 5.6</i> <i>a - 3.9</i>	57 36.06	+ 1.90	37.96	52.72				
	1485	+ 15 42	S	<i>s</i> <i>Q + 1.16</i>	44 12.98	+ 1.06	14.04	S	<i>s</i> <i>Q + 1.73</i>	42 19.27	+ 1.82	21.09	52.95				
	1539	+ 15 44	S		54 11.90	+ 1.06	12.96	S		52 18.37	+ 1.82	20.19	52.77				
	1551	+ 21 25	S		57 16.63	+ 1.12	17.75	S		55 23.06	+ 1.83	24.89	52.86				
				Mean, T <sub>E</sub>	4 51 29								<i>m s</i> - 1 52.830		+ 0.054	+ 0.020	- 1 52.756
Dec. 4	1602	+ 38 21	N	<i>I. P. W.</i>	5 6 38.37	- 0.98	37.39	N	<i>I. P. W.</i>	5 4 46.08	- 1.57	44.51	- 1 52.88				
	1609	+ 46 17	N	<i>d</i> <i>c - 0.1</i>	8 60.44	- 0.84	59.60	N	<i>d</i> <i>c - 0.7</i>	7 8.31	- 1.54	6.77	52.83				
	1663	+ 37 17	N	<i>b + 0.8</i> <i>a - 26.9</i>	17 55.07	- 1.00	54.07	N	<i>b + 5.6</i> <i>a - 3.9</i>	16 2.87	- 1.57	1.30	52.77				
	1681	+ 28 31	N	<i>s</i> <i>Q - 1.16</i>	20 6.58	- 1.12	5.46	N	<i>s</i> <i>Q - 1.73</i>	18 14.28	- 1.61	12.67	52.79				
	1591	+ 15 27	S		4 12.98	- 1.26	11.72	S		2 20.45	- 1.64	18.81	52.91				
	1624	+ 11 13	S		10 46.91	- 1.30	45.61	S		8 54.37	- 1.65	52.72	52.89				
	1637	+ 21 59	S		13 27.64	- 1.19	26.45	S		11 35.24	- 1.62	33.62	52.83				
				Mean, T <sub>E</sub>	5 11 44								<i>m s</i> - 1 52.843		+ 0.054	+ 0.017	- 1 52.772
Dec. 5	1476	+ 37 17	N	<i>I. P. E.</i>	4 43 12.08	+ 1.22	13.30	N	<i>I. P. E.</i>	4 41 16.26	+ 2.06	18.32	- 1 54.98				
	1520	+ 32 59	N	<i>d</i> <i>c - 0.6</i>	50 32.21	+ 1.18	33.39	N	<i>d</i> <i>c - 1.0</i>	48 36.48	+ 2.04	38.52	54.87				
	1558	+ 41 5	N	<i>b + 0.1</i> <i>a - 16.8</i>	59 28.51	+ 1.26	29.77	N	<i>b + 12.0</i> <i>a - 4.1</i>	57 32.77	+ 2.09	34.86	54.91				
	1485	+ 15 42	S	<i>s</i> <i>Q + 1.15</i>	44 12.00	+ 1.07	13.07	S	<i>s</i> <i>Q + 1.74</i>	42 16.22	+ 1.97	18.19	54.88				
	1539	+ 15 44	S		54 10.99	+ 1.07	12.06	S		52 15.12	+ 1.98	17.10	54.96				
	1551	+ 21 25	S		57 15.71	+ 1.10	16.81	S		55 19.86	+ 2.00	21.86	54.95				
				Mean, T <sub>E</sub>	4 51 29								<i>m s</i> - 1 54.925		+ 0.056	+ 0.020	- 1 54.849
Dec. 5	1602	+ 38 21	N	<i>I. P. E.</i>	5 6 37.58	- 1.07	36.51	N	<i>I. P. E.</i>	5 4 42.90	- 1.41	41.49	- 1 55.02				
	1609	+ 46 17	N	<i>d</i> <i>c - 0.6</i>	8 59.72	- 0.99	58.73	N	<i>d</i> <i>c - 1.0</i>	7 5.03	- 1.35	3.68	55.05				
	1663	+ 37 17	N	<i>b + 0.1</i> <i>a - 16.8</i>	17 54.30	- 1.08	53.22	N	<i>b + 12.0</i> <i>a - 4.1</i>	15 59.61	- 1.42	58.19	55.03				
	1681	+ 28 31	N	<i>s</i> <i>Q - 1.15</i>	20 5.75	- 1.15	4.60	N	<i>s</i> <i>Q - 1.74</i>	18 10.99	- 1.46	9.53	55.07				
	1591	+ 15 27	S		4 12.05	- 1.24	10.81	S		2 17.28	- 1.51	15.77	55.04				
	1624	+ 11 13	S		10 46.06	- 1.26	44.80	S		8 51.18	- 1.52	49.66	55.14				
	1637	+ 21 59	S		13 26.77	- 1.19	25.58	S		11 31.97	- 1.48	30.49	55.09				
				Mean, T <sub>E</sub>	5 11 43								<i>m s</i> - 1 55.063		+ 0.056	+ 0.017	- 1 54.990

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $85^{\circ} 25' 42''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl Equations $S_N - S_s = + 0.006$ $H_N - H_s = + 0.003$
	B.A.C Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 6	1476	+ 37 17	N	<i>I. P. W.</i>	4 43 10.56	+ 1.20	11.76	N	<i>I. P. W.</i>	4 41 13.33	+ 1.77	15.10	- 1 56.66			
	1497	+ 27 42	N	<i>c - 1.5</i> <i>d</i>	46 36.78	+ 1.17	37.95	N	<i>c - 0.5</i> <i>d</i>	44 39.63	+ 1.72	41.35	56.60			
	1520	+ 32 59	N	<i>b + 1.1</i> <i>a - 6.5</i>	50 30.74	+ 1.19	31.93	N	<i>b - 0.2</i> <i>a - 9.5</i>	48 33.47	+ 1.75	35.22	56.71			
	1558	+ 41 5	N	<i>s</i> <i>Q + 1.18</i>	59 27.08	+ 1.22	28.30	N	<i>s</i> <i>Q + 1.74</i>	57 29.88	+ 1.79	31.67	56.63			
	1497	+ 27 42	S		46 36.86	+ 1.17	38.03	S		44 39.63	+ 1.72	41.35	56.68			
	1528	+ 24 52	S		52 7.88	+ 1.17	9.05	S		50 10.69	+ 1.72	12.41	56.64			
	1539	+ 15 44	S		54 9.39	+ 1.14	10.53	S		52 12.25	+ 1.69	13.94	56.59			
	1551	+ 21 25	S		57 14.18	+ 1.16	15.34	S		55 16.96	+ 1.71	18.67	56.67			
				Mean, $T_E$	4 51 14											
Dec. 6	1602	+ 38 21	N	<i>I. P. W.</i>	5 6 36.06	- 1.15	34.91	N	<i>I. P. W.</i>	5 4 39.99	- 1.71	38.28	- 1 56.63			
	1609	+ 46 17	N	<i>c - 1.5</i> <i>d</i>	8 58.25	- 1.13	57.12	N	<i>c - 0.5</i> <i>d</i>	7 2.15	- 1.67	0.48	56.64			
	1648	+ 27 50	N	<i>b + 1.1</i> <i>a - 6.5</i>	14 49.08	- 1.19	47.89	N	<i>b - 0.2</i> <i>a - 9.5</i>	12 52.91	- 1.75	51.16	56.73			
	1663	+ 37 17	N	<i>s</i> <i>Q - 1.18</i>	17 52.79	- 1.16	51.63	N	<i>s</i> <i>Q - 1.74</i>	15 56.66	- 1.71	54.95	56.68			
	1681	+ 28 31	N		20 4.24	- 1.18	3.06	N		18 8.12	- 1.75	6.37	56.69			
	1591	+ 15 27	S		4 10.45	- 1.22	9.23	S		2 14.39	- 1.79	12.60	56.63			
	1624	+ 11 13	S		10 44.43	- 1.23	43.20	S		8 48.30	- 1.81	46.49	56.71			
	1637	+ 21 59	S		13 25.24	- 1.20	24.04	S		11 29.08	- 1.77	27.31	56.73			
	1648	+ 27 50	S		14 49.10	- 1.19	47.91	S		12 52.94	- 1.75	51.19	56.72			
				Mean, $T_H$	5 12 23											

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> 0 <sup>m</sup> 0 <sup>s</sup> 6 C <sub>N</sub> - C <sub>S</sub> = + 0 <sup>h</sup> 0 <sup>m</sup> 45	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882 Dec. 7	1476	+ 37 17	N	<i>I. P. E.</i>	<i>h m s</i> 4 43 9.31	<i>s</i> + 1.44	<i>s</i> 10.75	N	<i>I. P. E.</i>	<i>h m s</i> 4 41 10.16	<i>s</i> + 1.71	<i>s</i> 11.87	<i>m s</i> - 1 58.88				
	1497	+ 27 42	N	<i>d</i>	46 35.60	+ 1.30	36.90	N	<i>d</i>	44 36.59	+ 1.69	38.28	58.62				
	1520	+ 32 59	N	<i>c</i> + 1.7 <i>b</i> + 3.1 <i>a</i> - 25.3	50 29.53	+ 1.38	30.91	N	<i>c</i> - 1.4 <i>b</i> + 0.9 <i>a</i> - 3.8	48 30.54	+ 1.70	32.24	58.67				
	1558	+ 41 5	N	<i>s</i>	59 25.78	+ 1.50	27.28	N	<i>s</i>	57 26.86	+ 1.73	28.59	58.69				
	1485	+ 15 42	S	<i>Q</i> + 1.17	44 9.39	+ 1.17	10.56	S	<i>Q</i> + 1.71	42 10.16	+ 1.68	11.84	58.72				
	1497	+ 27 42	S		46 35.61	+ 1.30	36.91	S		44 36.58	+ 1.69	38.27	58.64				
	1528	+ 24 52	S		52 6.74	+ 1.27	8.01	S		50 7.52	+ 1.70	9.22	58.79				
	1539	+ 15 44	S		54 8.34	+ 1.17	9.51	S		52 9.17	+ 1.68	10.85	58.66				
	1551	+ 21 25	S		57 13.05	+ 1.23	14.28	S		55 13.90	+ 1.69	15.59	58.69				
				Mean, T <sub>E</sub>	4 50 26												
Dec. 7	1602	+ 38 21	N	<i>I. P. E.</i>	5 6 34.74	- 0.88	33.86	N	<i>I. P. E.</i>	5 4 36.94	- 1.70	35.24	- 1 58.62				
	1600	+ 46 17	N	<i>d</i>	8 56.83	- 0.74	56.09	N	<i>d</i>	6 59.08	- 1.69	57.39	58.70				
	1648	+ 27 50	N	<i>c</i> + 1.7 <i>b</i> + 3.1 <i>a</i> - 25.3	14 47.79	- 1.03	46.76	N	<i>c</i> - 1.4 <i>b</i> + 0.9 <i>a</i> - 3.8	12 49.81	- 1.73	48.08	58.68				
	1663	+ 37 17	N	<i>s</i>	17 51.49	- 0.90	50.59	N	<i>s</i>	15 53.57	- 1.71	51.86	58.73				
	1681	+ 28 31	N	<i>Q</i> - 1.17	20 3.07	- 1.03	2.04	N	<i>Q</i> - 1.71	18 5.00	- 1.73	3.27	58.77				
	1591	+ 15 27	S		4 9.36	- 1.17	8.19	S		2 11.25	- 1.74	9.51	58.68				
	1624	+ 11 13	S		10 43.35	- 1.21	42.14	S		8 45.13	- 1.74	43.39	58.75				
	1637	+ 21 59	S		13 24.08	- 1.10	22.98	S		11 25.94	- 1.73	24.21	58.77				
	1648	+ 27 50	S		14 47.89	- 1.03	46.86	S		12 49.82	- 1.73	48.09	58.77				
				Mean, T <sub>E</sub>	5 12 22												

NOTE.— $1^d = 0^{\circ} 0225$ . Transcribing Equation  $\frac{1}{2}$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Time (W - E)		Correction for Rate of W Clock	Corrns for Persl Equations S <sub>N</sub> - S <sub>0</sub> = + 0 <sup>s</sup> .006 H <sub>N</sub> - H <sub>0</sub> = + 0 <sup>s</sup> .003	M <sub>N</sub>
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882 Dec. 8	1476	+ 37 17	N	<i>I. P. W.</i>	4 43 7 <sup>h</sup> 70	+ 1 <sup>s</sup> .33	9 <sup>s</sup> .03	N	<i>I. P. W.</i>	4 41 6 <sup>h</sup> 73	+ 1 <sup>s</sup> .73	8 <sup>s</sup> .46	- 2 0 <sup>s</sup> .57				
	1497	+ 27 42	N	<i>c - d</i> 1 <sup>s</sup> .6	46 34 <sup>m</sup> .12	+ 1 <sup>s</sup> .12	35 <sup>s</sup> .24	N	<i>c - d</i> 0 <sup>s</sup> .7	44 33 <sup>m</sup> .03	+ 1 <sup>s</sup> .68	34 <sup>s</sup> .71	0 <sup>s</sup> .53				
	1520	+ 32 59	N	<i>b - a</i> 0 <sup>s</sup> .6 - 45 <sup>s</sup> .8	50 27 <sup>m</sup> .94	+ 1 <sup>s</sup> .24	29 <sup>s</sup> .18	N	<i>b - a</i> 0 <sup>s</sup> .6 - 9 <sup>s</sup> .4	48 26 <sup>m</sup> .99	+ 1 <sup>s</sup> .71	28 <sup>s</sup> .70	0 <sup>s</sup> .48				
	1558	+ 41 5	N	<i>s</i> <i>Q + 1<sup>s</sup>.16</i>	59 24 <sup>m</sup> .15	+ 1 <sup>s</sup> .44	25 <sup>s</sup> .59	N	<i>s</i> <i>Q + 1<sup>s</sup>.72</i>	57 23 <sup>m</sup> .24	+ 1 <sup>s</sup> .75	24 <sup>s</sup> .99	0 <sup>s</sup> .60				
	1485	+ 15 42	S		44 7 <sup>m</sup> .93	+ 0 <sup>s</sup> .91	8 <sup>s</sup> .84	S		42 6 <sup>m</sup> .68	+ 1 <sup>s</sup> .65	8 <sup>s</sup> .33	0 <sup>s</sup> .51				
	1497	+ 27 42	S		46 34 <sup>m</sup> .10	+ 1 <sup>s</sup> .12	35 <sup>s</sup> .22	S		44 33 <sup>m</sup> .02	+ 1 <sup>s</sup> .68	34 <sup>s</sup> .70	0 <sup>s</sup> .52				
	1528	+ 24 52	S		52 5 <sup>m</sup> .18	+ 1 <sup>s</sup> .08	6 <sup>s</sup> .26	S		50 4 <sup>m</sup> .07	+ 1 <sup>s</sup> .68	5 <sup>s</sup> .75	0 <sup>s</sup> .51				
	1539	+ 15 44	S		54 6 <sup>m</sup> .88	+ 0 <sup>s</sup> .91	7 <sup>s</sup> .79	S		52 5 <sup>m</sup> .69	+ 1 <sup>s</sup> .65	7 <sup>s</sup> .34	0 <sup>s</sup> .45				
	1551	+ 21 25	S		57 11 <sup>m</sup> .51	+ 1 <sup>s</sup> .01	12 <sup>s</sup> .52	S		55 10 <sup>m</sup> .40	+ 1 <sup>s</sup> .67	12 <sup>s</sup> .07	0 <sup>s</sup> .45				
				Mean, T <sub>E</sub>	4 50 24												
Dec. 8	1602	+ 38 21	N	<i>I. P. W.</i>	5 6 33 <sup>m</sup> .17	- 0 <sup>s</sup> .96	32 <sup>s</sup> .21	N	<i>I. P. W.</i>	5 4 33 <sup>m</sup> .38	- 1 <sup>s</sup> .71	31 <sup>s</sup> .67	- 2 0 <sup>s</sup> .54				
	1609	+ 46 17	N	<i>c - d</i> 1 <sup>s</sup> .6	8 55 <sup>m</sup> .21	- 0 <sup>s</sup> .73	54 <sup>s</sup> .48	N	<i>c - d</i> 0 <sup>s</sup> .7	6 55 <sup>m</sup> .50	- 1 <sup>s</sup> .66	53 <sup>s</sup> .84	0 <sup>s</sup> .64				
	1648	+ 27 50	N	<i>b - a</i> 0 <sup>s</sup> .6 - 45 <sup>s</sup> .8	14 46 <sup>m</sup> .28	- 1 <sup>s</sup> .19	45 <sup>s</sup> .09	N	<i>b - a</i> 0 <sup>s</sup> .6 - 9 <sup>s</sup> .4	12 46 <sup>m</sup> .30	- 1 <sup>s</sup> .75	44 <sup>s</sup> .55	0 <sup>s</sup> .54				
	1663	+ 37 17	N	<i>s</i> <i>Q - 1<sup>s</sup>.16</i>	17 49 <sup>m</sup> .91	- 0 <sup>s</sup> .99	48 <sup>s</sup> .92	N	<i>s</i> <i>Q - 1<sup>s</sup>.72</i>	15 50 <sup>m</sup> .08	- 1 <sup>s</sup> .71	48 <sup>s</sup> .37	0 <sup>s</sup> .55				
	1681	+ 28 31	N		20 1 <sup>m</sup> .48	- 1 <sup>s</sup> .18	0 <sup>s</sup> .30	N		17 61 <sup>m</sup> .51	- 1 <sup>s</sup> .75	59 <sup>s</sup> .76	0 <sup>s</sup> .54				
	1591	+ 15 27	S		4 7 <sup>m</sup> .91	- 1 <sup>s</sup> .42	6 <sup>s</sup> .49	S		2 7 <sup>m</sup> .67	- 1 <sup>s</sup> .79	5 <sup>s</sup> .88	0 <sup>s</sup> .61				
	1624	+ 11 13	S		10 41 <sup>m</sup> .88	- 1 <sup>s</sup> .48	40 <sup>s</sup> .40	S		8 41 <sup>m</sup> .76	- 1 <sup>s</sup> .81	39 <sup>s</sup> .95	0 <sup>s</sup> .45				
	1637	+ 21 59	S		13 22 <sup>m</sup> .55	- 1 <sup>s</sup> .30	21 <sup>s</sup> .25	S		11 22 <sup>m</sup> .60	- 1 <sup>s</sup> .77	20 <sup>s</sup> .83	0 <sup>s</sup> .42				
	1648	+ 27 50	S		14 46 <sup>m</sup> .32	- 1 <sup>s</sup> .19	45 <sup>s</sup> .13	S		12 46 <sup>m</sup> .25	- 1 <sup>s</sup> .75	44 <sup>s</sup> .50	0 <sup>s</sup> .63				
				Mean, T <sub>E</sub>	5 12 21												
Dec. 9	1476	+ 37 17	N	<i>I. P. E.</i>	4 43 6 <sup>h</sup> .54	+ 1 <sup>s</sup> .34	7 <sup>s</sup> .88	N	<i>I. P. E.</i>	4 41 3 <sup>h</sup> .45	+ 1 <sup>s</sup> .69	5 <sup>s</sup> .14	- 2 2 <sup>s</sup> .74				
	1497	+ 27 42	N	<i>c - d</i> 0 <sup>s</sup> .2	46 32 <sup>m</sup> .94	+ 1 <sup>s</sup> .19	34 <sup>s</sup> .13	N	<i>c - d</i> 1 <sup>s</sup> .3	44 29 <sup>m</sup> .79	+ 1 <sup>s</sup> .65	31 <sup>s</sup> .44	2 <sup>s</sup> .69				
	1520	+ 32 59	N	<i>b - a</i> 0 <sup>s</sup> .0 - 32 <sup>s</sup> .2	50 26 <sup>m</sup> .82	+ 1 <sup>s</sup> .27	28 <sup>s</sup> .09	N	<i>b - a</i> 1 <sup>s</sup> .2 - 9 <sup>s</sup> .5	48 23 <sup>m</sup> .68	+ 1 <sup>s</sup> .68	25 <sup>s</sup> .36	2 <sup>s</sup> .73				
	1558	+ 41 5	N	<i>s</i> <i>Q + 1<sup>s</sup>.18</i>	59 23 <sup>m</sup> .08	+ 1 <sup>s</sup> .41	24 <sup>s</sup> .49	N	<i>s</i> <i>Q + 1<sup>s</sup>.71</i>	57 20 <sup>m</sup> .12	+ 1 <sup>s</sup> .71	21 <sup>s</sup> .83	2 <sup>s</sup> .66				
	1485	+ 15 42	S		44 6 <sup>m</sup> .76	+ 1 <sup>s</sup> .04	7 <sup>s</sup> .80	S		42 3 <sup>m</sup> .50	+ 1 <sup>s</sup> .61	5 <sup>s</sup> .11	2 <sup>s</sup> .69				
	1497	+ 27 42	S		46 32 <sup>m</sup> .94	+ 1 <sup>s</sup> .19	34 <sup>s</sup> .13	S		44 29 <sup>m</sup> .75	+ 1 <sup>s</sup> .65	31 <sup>s</sup> .40	2 <sup>s</sup> .73				
	1528	+ 24 52	S		52 4 <sup>m</sup> .05	+ 1 <sup>s</sup> .16	5 <sup>s</sup> .21	S		50 0 <sup>m</sup> .96	+ 1 <sup>s</sup> .64	2 <sup>s</sup> .60	2 <sup>s</sup> .61				
	1539	+ 15 44	S		54 5 <sup>m</sup> .72	+ 1 <sup>s</sup> .04	6 <sup>s</sup> .76	S		52 2 <sup>m</sup> .49	+ 1 <sup>s</sup> .61	4 <sup>s</sup> .10	2 <sup>s</sup> .66				
	1551	+ 21 25	S		57 10 <sup>m</sup> .38	+ 1 <sup>s</sup> .11	11 <sup>s</sup> .49	S		55 7 <sup>m</sup> .23	+ 1 <sup>s</sup> .63	8 <sup>s</sup> .86	2 <sup>s</sup> .63				
				Mean, T <sub>E</sub>	4 50 23												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation #4, all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Corrns. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>o</sup> 006 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> 003	M <sub>N</sub>	
			By Strahan, with Telescope No. 2					By Heaviside, with Telescope No. 1									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			Correction for Rate of W. Clock
1882 Dec. 9	1602	+ 38 21	N	<i>I. P. E.</i>	<i>h m s</i> 5 6 32.10	<i>s</i> -1.00	<i>s</i> 31.10	N	<i>I. P. E.</i>	<i>h m s</i> 5 4 30.19	<i>s</i> -1.73	<i>s</i> 28.46	<i>m s</i> -2 2.64				
	1609	+ 46 17	N	<i>d</i> <i>c</i> - 0.2	8 54 20	-0.84	53.36	N	<i>d</i> <i>c</i> - 1.3	6 52.33	-1.69	50.64	2.72				
	1648	+ 27 50	N	<i>b</i> - 0.0 <i>a</i> - 32.2	14 45.25	-1.17	44.08	N	<i>b</i> - 1.2 <i>a</i> - 9.5	12 43.12	-1.76	41.36	2.72				
	1663	+ 37 17	N	<i>s</i>	17 48.82	-1.02	47.80	N	<i>s</i>	15 46.87	-1.73	45.14	2.66				
	1681	+ 28 31	N	<i>Q</i> - 1.18	19 60.44	-1.16	59.28	N	<i>Q</i> - 1.71	17 58.31	-1.76	56.55	2.73	<i>m s</i> 2 2.666	+ 0.060	0.001	
	1591	+ 15 27	S		4 6.70	-1.32	5.38	S		2 4.60	-1.81	2.79	2.59	-	+	-	
	1624	+ 11 13	S		10 40.66	-1.37	39.29	S		8 38.52	-1.83	36.69	2.60				
	1637	+ 21 59	S		13 21.43	-1.24	20.19	S		11 19.33	-1.79	17.54	2.65				
	1648	+ 27 50	S		14 45.27	-1.17	44.10	S		12 43.18	-1.76	41.42	2.68				
				Mean, T <sub>E</sub>	5 12 19												
Dec. 11	1476	+ 37 17	N	<i>I. P. W.</i>	4 43 3.56	+1.25	4.81	N	<i>I. P. W.</i>	4 40 56.59	+1.73	58.32	-2 6.49				
	1497	+ 27 42	N	<i>d</i> <i>c</i> - 1.9	46 29.88	+1.13	31.01	N	<i>d</i> <i>c</i> - 1.5	44 22.89	+1.65	24.54	6.47				
	1520	+ 32 59	N	<i>b</i> - 0.4 <i>a</i> - 23.9	50 23.77	+1.19	24.96	N	<i>b</i> - 1.3 <i>a</i> - 17.7	48 16.80	+1.69	18.49	6.47				
	1558	+ 41 5	N	<i>s</i>	59 20.06	+1.29	21.35	N	<i>s</i>	57 13.02	+1.77	14.79	6.56				
	1485	+ 15 42	S	<i>Q</i> + 1.18	44 3.59	+1.02	4.61	S	<i>Q</i> + 1.72	41 56.59	+1.57	58.16	6.45	<i>m s</i> 2 6.471	+ 0.063	0.002	
	1497	+ 27 42	S		46 29.88	+1.13	31.01	S		44 22.98	+1.65	24.63	6.38	-	+	-	
	1528	+ 24 52	S		52 0.97	+1.10	2.07	S		49 53.91	+1.62	55.53	6.54				
	1539	+ 15 44	S		54 2.53	+1.02	3.55	S		51 55.53	+1.58	57.11	6.44				
	1551	+ 21 25	S		57 7.27	+1.07	8.34	S		55 0.30	+1.60	1.90	6.44				
				Mean, T <sub>E</sub>	4 50 20												
Dec. 11	1602	+ 38 21	N	<i>I. P. W.</i>	5 6 29.05	-1.10	27.95	N	<i>I. P. W.</i>	5 4 23.25	-1.70	21.55	-2 6.40				
	1609	+ 46 17	N	<i>d</i> <i>c</i> - 1.9	8 51.17	-0.99	50.18	N	<i>d</i> <i>c</i> - 1.5	6 45.46	-1.63	43.83	6.35				
	1648	+ 27 50	N	<i>b</i> - 0.4 <i>a</i> - 23.9	14 42.10	-1.23	40.87	N	<i>b</i> - 1.3 <i>a</i> - 17.7	12 36.23	-1.79	34.44	6.43				
	1663	+ 37 17	N	<i>s</i>	17 45.75	-1.11	44.64	N	<i>s</i>	15 39.95	-1.71	38.24	6.40				
	1681	+ 28 31	N	<i>Q</i> - 1.18	19 57.25	-1.22	56.03	N	<i>Q</i> - 1.72	17 51.37	-1.79	49.58	6.45				
	1591	+ 15 27	S		4 3.59	-1.34	2.25	S		1 57.77	-1.87	55.90	6.35	<i>m s</i> 2 6.382	+ 0.063	0.001	
	1624	+ 11 13	S		10 37.49	-1.37	36.12	S		8 31.72	-1.89	29.83	6.29	-	+	-	
	1637	+ 21 59	S		13 18.30	-1.29	17.01	S		11 12.51	-1.84	10.67	6.34				
	1648	+ 27 50	S		14 42.11	-1.23	40.88	S		12 36.24	-1.79	34.45	6.43				
				Mean, T <sub>E</sub>	5 12 16												

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $m$ , all records having been transcribed by the same person.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $S_N - S_S = + 0.006$ $C_N - C_S = + 0.045$	$\delta L_N - \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 2	1040	+ 27 11	N	<i>I. P. E.</i>	3 16 22.86	+ 1.23	24.09	N	<i>I. P. E.</i>	3 42 45.43	+ 1.22	46.65	26 22.56				
	1078	+ 47 28	N	$\begin{smallmatrix} d \\ c + 0.4 \\ b + 1.9 \\ a + 0.8 \end{smallmatrix}$	24 31.42	+ 1.23	32.65	N	$\begin{smallmatrix} d \\ c - 1.0 \\ b - 2.5 \\ a + 3.2 \end{smallmatrix}$	50 54.00	+ 1.16	55.16	22.51				
	1123	+ 37 12	N	$\begin{smallmatrix} d \\ c + 0.4 \\ b + 1.9 \\ a + 0.8 \end{smallmatrix}$	34 43.58	+ 1.23	44.81	N	$\begin{smallmatrix} d \\ c - 1.0 \\ b - 2.5 \\ a + 3.2 \end{smallmatrix}$	61 6.11	+ 1.19	7.30	22.49				
	1132	+ 33 35	N	$\begin{smallmatrix} s \\ Q + 1.17 \end{smallmatrix}$	36 10.26	+ 1.23	11.49	N	$\begin{smallmatrix} s \\ Q + 1.31 \end{smallmatrix}$	62 32.76	+ 1.20	33.96	22.47	<i>m s</i>	+ 0.015	+ 0.013	
	1040	+ 27 11	S		16 22.76	+ 1.23	23.99	S		42 45.27	+ 1.22	46.49	22.50				
	1087	+ 12 32	S		25 36.95	+ 1.22	38.17	S		51 59.42	+ 1.25	60.67	22.50				
Dec. 4	1040	+ 27 11	N	<i>I. P. W.</i>	3 16 20.97	+ 1.19	22.16	N	<i>I. P. W.</i>	3 42 43.34	+ 1.85	45.19	26 23.03				
	1071	+ 47 35	N	$\begin{smallmatrix} d \\ c - 0.1 \\ b + 0.8 \\ a - 26.9 \end{smallmatrix}$	23 30.63	+ 1.50	32.13	N	$\begin{smallmatrix} d \\ c - 0.7 \\ b + 5.6 \\ a - 3.9 \end{smallmatrix}$	49 53.30	+ 1.93	55.23	23.10				
	1123	+ 37 12	N	$\begin{smallmatrix} d \\ c - 0.1 \\ b + 0.8 \\ a - 26.9 \end{smallmatrix}$	34 41.65	+ 1.32	42.97	N	$\begin{smallmatrix} d \\ c - 0.7 \\ b + 5.6 \\ a - 3.9 \end{smallmatrix}$	61 4.11	+ 1.89	6.00	23.03				
	1132	+ 33 35	N	$\begin{smallmatrix} s \\ Q + 1.16 \end{smallmatrix}$	36 8.34	+ 1.27	9.61	N	$\begin{smallmatrix} s \\ Q + 1.73 \end{smallmatrix}$	62 30.74	+ 1.87	32.61	23.00	<i>m s</i>	+ 0.017	+ 0.020	
	1040	+ 27 11	S		16 20.94	+ 1.19	22.13	S		42 43.22	+ 1.85	45.07	22.94				
	1052	+ 24 19	S		18 34.49	+ 1.16	35.65	S		44 56.73	+ 1.85	58.58	22.93				
	1057	+ 8 37	S		19 41.44	+ 0.99	42.43	S		46 3.59	+ 1.80	5.39	22.96				
	1087	+ 12 32	S		25 35.24	+ 1.03	36.27	S		51 57.55	+ 1.81	59.36	23.09				
Dec. 4	1192	+ 25 14	N	<i>I. P. W.</i>	3 44 29.77	- 1.15	28.62	N	<i>I. P. W.</i>	4 10 53.26	- 1.61	51.65	26 23.03				
	1207	+ 31 32	N	$\begin{smallmatrix} d \\ c - 0.1 \\ b + 0.8 \\ a - 26.9 \end{smallmatrix}$	47 59.62	- 1.08	58.54	N	$\begin{smallmatrix} d \\ c - 0.7 \\ b + 5.6 \\ a - 3.9 \end{smallmatrix}$	14 23.23	- 1.59	21.64	23.10				
	1219	+ 39 40	N	$\begin{smallmatrix} d \\ c - 0.1 \\ b + 0.8 \\ a - 26.9 \end{smallmatrix}$	51 13.29	- 0.96	12.33	N	$\begin{smallmatrix} d \\ c - 0.7 \\ b + 5.6 \\ a - 3.9 \end{smallmatrix}$	17 37.00	- 1.56	35.44	23.11				
	1228	+ 35 27	N	$\begin{smallmatrix} s \\ Q - 1.16 \end{smallmatrix}$	52 35.47	- 1.02	34.45	N	$\begin{smallmatrix} s \\ Q - 1.73 \end{smallmatrix}$	18 59.06	- 1.58	57.48	23.03	<i>m s</i>	+ 0.017	+ 0.020	
	1166	+ 23 45	S		41 44.68	- 1.17	43.51	S		8 8.11	- 1.62	6.49	22.98				
	1171	+ 23 59	S		42 43.86	- 1.17	42.69	S		9 8.34	- 1.61	6.73	23.04				
	1192	+ 25 14	S		44 29.82	- 1.15	28.67	S		10 53.39	- 1.61	51.78	23.11				
	1257	+ 21 46	S		58 59.53	- 1.19	58.34	S		25 22.99	- 1.62	21.37	23.03				

NOTE.  $1^s = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



**TABLE IX.** OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*[illegible]

NOTE. 1<sup>d</sup> - 01-0225. Transcribing Equation #12, all records having been transcribed by the same person.

\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																		
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>o</sup> .006 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> .003	δ L <sub>N</sub> - ρ	
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group				
1882		° ' ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>					
Dec. 8	1071	+ 47 35	N	<i>I. P. W.</i>	3 23 25 <sup>o</sup> .38	+ 1 <sup>o</sup> .64	27 <sup>o</sup> .02	N	<i>I. P. W.</i>	3 49 48 <sup>o</sup> .08	+ 1 <sup>o</sup> .79	49 <sup>o</sup> .87	26 22 <sup>o</sup> .85	<i>m s</i> 26 22 <sup>o</sup> .838	+	0 <sup>o</sup> .026	-	26 22 <sup>o</sup> .862
	1078	+ 47 28	N	<i>d</i>	24 23 <sup>o</sup> .96	+ 1 <sup>o</sup> .64	25 <sup>o</sup> .60	N	<i>d</i>	50 46 <sup>o</sup> .69	+ 1 <sup>o</sup> .79	48 <sup>o</sup> .48	22 <sup>o</sup> .88					
	1123	+ 37 12	N	<i>c</i> - 1 <sup>o</sup> .6 <i>b</i> - 0 <sup>o</sup> .6 <i>a</i> - 45 <sup>o</sup> .8	34 36 <sup>o</sup> .50	+ 1 <sup>o</sup> .33	37 <sup>o</sup> .83	N	<i>c</i> - 0 <sup>o</sup> .7 <i>b</i> - 0 <sup>o</sup> .6 <i>a</i> - 9 <sup>o</sup> .4	4 058 <sup>o</sup> .88	+ 1 <sup>o</sup> .73	60 <sup>o</sup> .61	22 <sup>o</sup> .78					
	1052	+ 24 19	S	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .16	18 29 <sup>o</sup> .38	+ 1 <sup>o</sup> .07	30 <sup>o</sup> .45	S	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .72	3 44 51 <sup>o</sup> .59	+ 1 <sup>o</sup> .68	53 <sup>o</sup> .27	22 <sup>o</sup> .82					
	1057	+ 8 37	S		19 36 <sup>o</sup> .43	+ 0 <sup>o</sup> .79	37 <sup>o</sup> .22	S		45 58 <sup>o</sup> .39	+ 1 <sup>o</sup> .62	60 <sup>o</sup> .01	22 <sup>o</sup> .79					
	1087	+ 12 32	S		25 30 <sup>o</sup> .20	+ 0 <sup>o</sup> .85	31 <sup>o</sup> .05	S		51 52 <sup>o</sup> .32	+ 1 <sup>o</sup> .64	53 <sup>o</sup> .96	22 <sup>o</sup> .91					
Dec. 8	1192	+ 25 14	N	<i>I. P. W.</i>	3 44 24 <sup>o</sup> .70	- 1 <sup>o</sup> .23	23 <sup>o</sup> .47	N	<i>I. P. W.</i>	4 10 48 <sup>o</sup> .04	- 1 <sup>o</sup> .76	46 <sup>o</sup> .28	26 22 <sup>o</sup> .81	<i>m s</i> 26 22 <sup>o</sup> .909	+	0 <sup>o</sup> .026	-	26 22 <sup>o</sup> .933
	1207	+ 31 32	N	<i>d</i>	47 54 <sup>o</sup> .53	- 1 <sup>o</sup> .11	53 <sup>o</sup> .42	N	<i>d</i>	14 18 <sup>o</sup> .03	- 1 <sup>o</sup> .74	16 <sup>o</sup> .29	22 <sup>o</sup> .87					
	1219	+ 39 40	N	<i>c</i> - 1 <sup>o</sup> .6 <i>b</i> - 0 <sup>o</sup> .6 <i>a</i> - 45 <sup>o</sup> .8	51 8 <sup>o</sup> .12	- 0 <sup>o</sup> .92	7 <sup>o</sup> .20	N	<i>c</i> - 0 <sup>o</sup> .7 <i>b</i> - 0 <sup>o</sup> .6 <i>a</i> - 9 <sup>o</sup> .4	17 31 <sup>o</sup> .86	- 1 <sup>o</sup> .70	30 <sup>o</sup> .16	22 <sup>o</sup> .96					
	1228	+ 35 27	N	<i>s</i> <i>Q</i> - 1 <sup>o</sup> .16	52 30 <sup>o</sup> .37	- 1 <sup>o</sup> .02	29 <sup>o</sup> .35	N	<i>s</i> <i>Q</i> - 1 <sup>o</sup> .72	18 53 <sup>o</sup> .94	- 1 <sup>o</sup> .72	52 <sup>o</sup> .22	22 <sup>o</sup> .87					
	1166	+ 23 45	S		41 39 <sup>o</sup> .58	- 1 <sup>o</sup> .26	38 <sup>o</sup> .32	S		8 2 <sup>o</sup> .97	- 1 <sup>o</sup> .76	1 <sup>o</sup> .21	22 <sup>o</sup> .89					
	1171	+ 23 59	S		42 39 <sup>o</sup> .81	- 1 <sup>o</sup> .26	38 <sup>o</sup> .55	S		9 3 <sup>o</sup> .19	- 1 <sup>o</sup> .76	1 <sup>o</sup> .43	22 <sup>o</sup> .88					
	1192	+ 25 14	S		44 24 <sup>o</sup> .67	- 1 <sup>o</sup> .23	23 <sup>o</sup> .44	S		10 48 <sup>o</sup> .14	- 1 <sup>o</sup> .76	46 <sup>o</sup> .38	22 <sup>o</sup> .94					
	1238	+ 22 52	S		55 7 <sup>o</sup> .68	- 1 <sup>o</sup> .28	6 <sup>o</sup> .40	S		21 31 <sup>o</sup> .13	- 1 <sup>o</sup> .77	29 <sup>o</sup> .36	22 <sup>o</sup> .96					
	1257	+ 21 46	S		58 54 <sup>o</sup> .50	- 1 <sup>o</sup> .30	53 <sup>o</sup> .20	S		25 17 <sup>o</sup> .97	- 1 <sup>o</sup> .77	16 <sup>o</sup> .20	23 <sup>o</sup> .00					
Dec. 9	1071	+ 47 35	N	<i>I. P. E.</i>	3 23 24 <sup>o</sup> .29	+ 1 <sup>o</sup> .56	25 <sup>o</sup> .85	N	<i>I. P. E.</i>	3 49 46 <sup>o</sup> .91	+ 1 <sup>o</sup> .74	48 <sup>o</sup> .65	26 22 <sup>o</sup> .80	<i>m s</i> 26 22 <sup>o</sup> .793	+	0 <sup>o</sup> .024	-	26 22 <sup>o</sup> .816
	1078	+ 47 28	N	<i>d</i>	24 22 <sup>o</sup> .92	+ 1 <sup>o</sup> .55	24 <sup>o</sup> .47	N	<i>d</i>	50 45 <sup>o</sup> .48	+ 1 <sup>o</sup> .74	47 <sup>o</sup> .22	22 <sup>o</sup> .75					
	1123	+ 37 12	N	<i>c</i> - 0 <sup>o</sup> .2 <i>b</i> 0 <sup>o</sup> .0 <i>a</i> - 32 <sup>o</sup> .2	34 35 <sup>o</sup> .32	+ 1 <sup>o</sup> .34	36 <sup>o</sup> .66	N	<i>c</i> - 1 <sup>o</sup> .3 <i>b</i> - 1 <sup>o</sup> .2 <i>a</i> - 9 <sup>o</sup> .5	4 057 <sup>o</sup> .83	+ 1 <sup>o</sup> .69	59 <sup>o</sup> .52	22 <sup>o</sup> .86					
	1132	+ 33 35	N	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .18	36 2 <sup>o</sup> .03	+ 1 <sup>o</sup> .28	3 <sup>o</sup> .31	N	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .71	2 24 <sup>o</sup> .49	+ 1 <sup>o</sup> .67	26 <sup>o</sup> .16	22 <sup>o</sup> .85					
	1057	+ 8 37	S		19 35 <sup>o</sup> .19	+ 0 <sup>o</sup> .95	36 <sup>o</sup> .14	S		3 45 57 <sup>o</sup> .29	+ 1 <sup>o</sup> .58	58 <sup>o</sup> .87	22 <sup>o</sup> .73					
	1087	+ 12 32	S		25 28 <sup>o</sup> .99	+ 1 <sup>o</sup> .00	29 <sup>o</sup> .99	S		51 51 <sup>o</sup> .16	+ 1 <sup>o</sup> .60	52 <sup>o</sup> .76	22 <sup>o</sup> .77					

NOTE.— $1^d = 0^{\circ}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 6 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $E_N - S_S = + 0^{\circ}.006$ $H_N - H_S = + 0^{\circ}.003$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 9	1192	+ 25 14	N	<i>I. P. E.</i>	3 44 23.50	-1.20	22.30	N	<i>I. P. E.</i>	4 10 46.92	-1.78	45.14	26 22.84				
	1207	+ 31 32	N	<i>d</i> <i>c</i> - 0.2	47 53.37	-1.12	52.25	N	<i>d</i> <i>c</i> - 1.3	14 16.82	-1.75	15.07	22.82				
	1219	+ 39 40	N	<i>b</i> 0.0 <i>a</i> - 32.2	51 6.99	-0.97	6.02	N	<i>b</i> - 1.2 <i>a</i> - 9.5	17 30.60	-1.72	28.88	22.86				
	1228	+ 35 27	N	<i>s</i> <i>Q</i> - 1.18	52 29.15	-1.05	28.10	N	<i>s</i> <i>Q</i> - 1.71	18 52.71	-1.74	50.97	22.87				
	1166	+ 23 45	S		41 38.39	-1.22	37.17	S		8 1.80	-1.78	0.02	22.85	<i>m s</i> 26 22.851	+ 0.024	- 0.002	26 22.873
	1171	+ 23 59	S		42 38.65	-1.21	37.44	S		9 2.01	-1.78	0.23	22.79				
	1192	+ 25 14	S		44 23.56	-1.20	22.36	S		10 46.99	-1.78	45.21	22.85				
	1238	+ 22 52	S		55 6.46	-1.23	5.23	S		21 29.94	-1.79	28.15	22.92				
	1257	+ 21 46	S		58 53.27	-1.24	52.03	S		25 16.68	-1.79	14.89	22.86				
Dec 11	1040	+ 27 11	N	<i>I. P. W.</i>	3 16 11.71	+1.13	12.84	N	<i>I. P. W.</i>	3 42 34.02	+1.64	35.66	26 22.82				
	1071	+ 47 35	N	<i>d</i> <i>c</i> - 1.9	23 21.39	+1.40	22.79	N	<i>d</i> <i>c</i> - 1.5	49 43.84	+1.83	45.67	22.88				
	1078	+ 47 28	N	<i>b</i> - 0.4 <i>a</i> - 23.9	24 20.01	+1.39	21.40	N	<i>b</i> - 1.5 <i>a</i> - 17.7	50 42.50	+1.83	44.33	22.93				
	1123	+ 37 12	N	<i>s</i> <i>Q</i> + 1.18	34 32.37	+1.24	33.61	N	<i>s</i> <i>Q</i> + 1.72	4 054.77	+1.73	56.50	22.89	<i>m s</i> 26 22.911	+ 0.027	- 0.001	26 22.937
	1132	+ 33 35	N		35 59.07	+1.20	60.27	N		2 21.47	+1.70	23.17	22.90				
	1040	+ 27 11	S		16 11.65	+1.13	12.78	S		3 42 34.03	+1.64	35.67	22.89				
	1052	+ 24 19	S		18 25.14	+1.10	26.24	S		44 47.58	+1.62	49.20	22.96				
	1087	+ 12 32	S		25 25.83	+1.00	26.83	S		51 48.29	+1.56	49.85	23.02				
Dec 11	1192	+ 25 14	N	<i>I. P. W.</i>	3 44 20.45	-1.25	19.20	N	<i>I. P. W.</i>	4 10 44.00	-1.81	42.19	26 22.99				
	1207	+ 31 32	N	<i>d</i> <i>c</i> - 1.9	47 50.32	-1.19	49.13	N	<i>d</i> <i>c</i> - 1.5	14 13.89	-1.76	12.13	23.00				
	1219	+ 39 40	N	<i>b</i> - 0.4 <i>a</i> - 23.9	51 4.09	-1.09	3.00	N	<i>b</i> - 1.5 <i>a</i> - 17.7	17 27.59	-1.68	25.91	22.91				
	1228	+ 35 27	N	<i>s</i> <i>Q</i> - 1.18	52 26.24	-1.14	25.10	N	<i>s</i> <i>Q</i> - 1.72	18 49.74	-1.73	48.01	22.91				
	1166	+ 23 45	S		41 35.36	-1.27	34.09	S		7 58.91	-1.82	57.09	23.00	<i>m s</i> 26 22.978	+ 0.027	- 0.002	26 23.003
	1171	+ 23 59	S		42 35.56	-1.27	34.29	S		8 59.13	-1.82	57.31	23.02				
	1192	+ 25 14	S		44 20.46	-1.25	19.21	S		10 44.08	-1.81	42.27	23.06				
	1238	+ 22 52	S		55 3.48	-1.28	2.20	S		21 27.00	-1.83	25.17	22.97				
	1257	+ 21 46	S		58 50.23	-1.29	48.94	S		25 13.72	-1.84	11.88	22.94				

NOTE.—1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^s.006$ $C_N - C_S = + 0^s.045$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 2	2001	+ 29 32	N	<i>I. P. E.</i>	5 40 55.72	+ 1.23	56.95	N	<i>I. P. E.</i>	6 7 18.51	+ 1.22	19.73	26 22.78			
	2081	+ 46 46	N	<i>d</i>	54 19.21	+ 1.23	20.44	N	<i>d</i>	20 42.08	+ 1.16	43.24	22.80			
	2097	+ 28 18	N	<i>c + 0.4</i> <i>b + 1.9</i> <i>a + 0.8</i>	55 59.37	+ 1.23	60.60	N	<i>c - 1.0</i> <i>b - 2.5</i> <i>a + 3.2</i>	22 22.10	+ 1.22	23.32	22.72			
	1971	+ 23 8	S	<i>s</i>	35 38.10	+ 1.23	39.33	S	<i>s</i>	2 0.79	+ 1.24	2.03	22.70			
	1975	+ 23 1	S	<i>Q + 1.17</i>	36 24.42	+ 1.23	25.65	S	<i>Q + 1.31</i>	2 47.13	+ 1.24	48.36	22.71			
	1987	+ 22 56	S		38 13.82	+ 1.23	15.05	S		4 36.55	+ 1.24	37.79	22.74			
	2047	+ 22 34	S		48 53.21	+ 1.23	54.44	S		15 15.95	+ 1.24	17.19	22.75			
	2058	+ 25 6	S		50 31.65	+ 1.23	32.88	S		16 54.41	+ 1.23	55.64	22.76			
	2097	+ 28 18	S		55 59.32	+ 1.23	60.55	S		22 22.00	+ 1.22	23.22	22.67			
Dec. 2	2104	+ 25 15	N	<i>I. P. E.</i>	6 9 46.52	- 1.11	45.41	N	<i>I. P. E.</i>	6 36 9.58	- 1.39	8.19	26 22.78			
	2201	+ 48 55	N	<i>d</i>	11 47.30	- 1.11	46.19	N	<i>d</i>	38 10.43	- 1.46	8.97	22.78			
	2235	+ 39 1	N	<i>c + 0.4</i> <i>b + 1.9</i> <i>a + 0.8</i>	18 1.14	- 1.12	0.02	N	<i>c - 1.0</i> <i>b - 2.5</i> <i>a + 3.2</i>	44 24.26	- 1.43	22.83	22.81			
	2129	+ 14 15	S	<i>s</i>	5 59 59.98	- 1.12	58.86	S	<i>s</i>	26 23.00	- 1.37	21.63	22.77			
	2163	+ 16 30	S	<i>Q - 1.17</i>	6 3 59.65	- 1.12	58.53	S	<i>Q - 1.31</i>	30 22.68	- 1.38	21.30	22.77			
	2216	+ 8 10	S		13 60.99	- 1.11	59.88	S		40 24.06	- 1.36	22.70	22.82			
Dec. 4	2001	+ 29 32	N	<i>I. P. W.</i>	5 40 49.53	+ 1.22	50.75	N	<i>I. P. W.</i>	6 7 12.13	+ 1.85	13.98	26 23.23			
	2081	+ 46 46	N	<i>d</i>	54 12.86	+ 1.48	14.34	N	<i>d</i>	20 35.77	+ 1.92	37.69	23.35			
	2097	+ 28 18	N	<i>c - 0.1</i> <i>b + 0.8</i> <i>a - 26.9</i>	55 53.14	+ 1.20	54.34	N	<i>c - 0.7</i> <i>b + 5.6</i> <i>a - 3.9</i>	22 15.86	+ 1.85	17.71	23.37			
	1971	+ 23 8	S	<i>s</i>	35 31.89	+ 1.14	33.03	S	<i>s</i>	1 54.47	+ 1.84	56.31	23.28			
	1975	+ 23 1	S	<i>Q + 1.16</i>	36 18.21	+ 1.14	19.35	S	<i>Q + 1.73</i>	2 40.82	+ 1.84	42.66	23.31			
	1987	+ 22 56	S		38 7.64	+ 1.14	8.78	S		4 30.13	+ 1.84	31.97	23.19			
	2047	+ 22 34	S		48 47.00	+ 1.13	48.13	S		15 9.55	+ 1.84	11.39	23.26			
	2058	+ 25 6	S		50 25.43	+ 1.16	26.59	S		16 48.06	+ 1.85	49.91	23.32			
	2097	+ 28 18	S		55 53.10	+ 1.20	54.30	S		22 15.70	+ 1.85	17.55	23.25			

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation  $\pi$ 17, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

JALPAIGURI (E) Lat. 26° 31', Long. 85° 55' 7": AND FYZABAD (W) Lat. 26° 47', Long. 85° 28' 42".																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0^{\circ} 006$ $C_N - C_S = + 0^{\circ} 045$	$\delta L_N + \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 4	2194	+ 25 15	N	<i>I. P. W.</i>	6 9 40.32	-1.15	39.17	N	<i>I. P. W.</i>	6 36 4.08	-1.61	2.47	26 23.30				
	2201	+ 48 55	N	<i>c - 0.1</i> <i>d</i>	11 40.88	-0.78	40.10	N	<i>c - 0.7</i> <i>d</i>	38 4.89	-1.52	3.37	23.27				
	2235	+ 39 1	N	<i>b + 0.8</i> <i>a - 26.9</i>	17 54.87	-0.97	53.90	N	<i>b + 5.6</i> <i>a - 3.9</i>	44 18.77	-1.57	17.20	23.30				
	2129	+ 14 15	S	<i>Q - 1.16</i>	5 59 53.88	-1.28	52.61	S	<i>Q - 1.73</i>	26 17.50	-1.64	15.86	23.25				
	2149	+ 16 54	S		6 2 11.97	-1.24	10.73	S		28 35.57	-1.64	33.93	23.20				
	2163	+ 16 30	S		3 53.49	-1.25	52.24	S		30 17.10	-1.64	15.46	23.22				
	2178	+ 28 18	S		6 54.81	-1.12	53.69	S		33 18.56	-1.61	16.95	23.26				
	2216	+ 8 10	S		13 54.93	-1.33	53.60	S		40 18.55	-1.66	16.89	23.29				
Dec. 5	2001	+ 29 32	N	<i>I. P. E.</i>	5 40 46.84	+1.15	47.99	N	<i>I. P. E.</i>	6 6 8.94	+2.02	10.96	26 22.97				
	2081	+ 46 46	N	<i>c - 0.6</i> <i>d</i>	54 10.25	+1.32	11.57	N	<i>c - 1.0</i> <i>d</i>	20 32.45	+2.13	34.58	23.01				
	2097	+ 28 18	N	<i>b + 0.1</i> <i>a - 16.8</i>	55 50.41	+1.14	51.55	N	<i>b + 12.0</i> <i>a - 4.1</i>	22 12.51	+2.02	14.53	22.98				
	1971	+ 23 8	S	<i>Q + 1.15</i>	35 29.14	+1.12	30.26	S	<i>Q + 1.74</i>	1 51.23	+2.00	53.23	22.97				
	1975	+ 23 1	S		36 15.52	+1.11	16.63	S		2 37.63	+2.00	39.63	23.00				
	1987	+ 22 56	S		38 4.84	+1.11	5.95	S		4 27.01	+2.00	29.01	23.06				
Dec. 5	2194	+ 25 15	N	<i>I. P. E.</i>	6 9 37.65	-1.17	36.48	N	<i>I. P. E.</i>	6 35 60.84	-1.46	59.38	26 22.90				
	2201	+ 48 55	N	<i>c - 0.6</i> <i>d</i>	11 38.27	-0.95	37.32	N	<i>c - 1.0</i> <i>d</i>	38 1.62	-1.34	0.28	22.96				
	2235	+ 39 1	N	<i>b + 0.1</i> <i>a - 16.8</i>	17 52.18	-1.06	51.12	N	<i>b + 12.0</i> <i>a - 4.1</i>	44 15.46	-1.40	14.06	22.94				
	2129	+ 14 15	S	<i>Q - 1.15</i>	5 59 51.09	-1.24	49.85	S	<i>Q - 1.74</i>	26 14.31	-1.51	12.80	22.95				
	2149	+ 16 54	S		6 2 9.21	-1.23	7.98	S		28 32.44	-1.50	30.94	22.96				
	2163	+ 16 30	S		3 50.72	-1.23	49.49	S		30 13.96	-1.50	12.46	22.97				
	2216	+ 8 10	S		13 52.11	-1.28	50.83	S		40 15.32	-1.53	13.79	22.96				

NOTE.—1<sup>st</sup> = 0<sup>h</sup> 0225. Transcribing Equation nil, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 6 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .006 H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .003	δ L <sub>N</sub> + ρ
			By Strahan, with Telescope No. 2					By Heaviside, with Telescope No. 1									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1882		o ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 6	2001	+ 29 32	N	<i>I. P. W.</i>	5 40 43 <sup>s</sup> .52	+ 1 <sup>s</sup> .18	44 <sup>s</sup> .70	N	<i>I. P. W.</i>	6 7 6 <sup>s</sup> .07	+ 1 <sup>s</sup> .73	7 <sup>s</sup> .80	26 23 <sup>s</sup> .10				
	2081	+ 46 46	N	<i>d</i>	54 7 <sup>s</sup> .05	+ 1 <sup>s</sup> .23	8 <sup>s</sup> .28	N	<i>d</i>	20 29 <sup>s</sup> .59	+ 1 <sup>s</sup> .82	31 <sup>s</sup> .41	23 <sup>s</sup> .13				
	2097	+ 28 18	N	<i>c</i> - 1 <sup>s</sup> .5 <i>b</i> + 1 <sup>s</sup> .1 <i>a</i> - 6 <sup>s</sup> .5	55 47 <sup>s</sup> .12	+ 1 <sup>s</sup> .18	48 <sup>s</sup> .30	N	<i>c</i> - 0 <sup>s</sup> .5 <i>b</i> - 0 <sup>s</sup> .2 <i>a</i> - 9 <sup>s</sup> .5	22 9 <sup>s</sup> .72	+ 1 <sup>s</sup> .73	11 <sup>s</sup> .45	23 <sup>s</sup> .15				
	1971	+ 23 8	S	<i>s</i> <i>Q</i> + 1 <sup>s</sup> .18	35 25 <sup>s</sup> .81	+ 1 <sup>s</sup> .16	26 <sup>s</sup> .97	S	<i>s</i> <i>Q</i> + 1 <sup>s</sup> .74	1 48 <sup>s</sup> .30	+ 1 <sup>s</sup> .72	50 <sup>s</sup> .02	23 <sup>s</sup> .05				
	1975	+ 23 1	S		36 12 <sup>s</sup> .12	+ 1 <sup>s</sup> .16	13 <sup>s</sup> .28	S		2 34 <sup>s</sup> .65	+ 1 <sup>s</sup> .72	36 <sup>s</sup> .37	23 <sup>s</sup> .09	<i>m s</i> 26 23 <sup>s</sup> .074	+ 0 <sup>s</sup> .058		
	1987	+ 22 56	S		38 1 <sup>s</sup> .57	+ 1 <sup>s</sup> .16	2 <sup>s</sup> .73	S		4 24 <sup>s</sup> .06	+ 1 <sup>s</sup> .71	25 <sup>s</sup> .77	23 <sup>s</sup> .04				
	2047	+ 22 34	S		48 40 <sup>s</sup> .91	+ 1 <sup>s</sup> .16	42 <sup>s</sup> .07	S		15 3 <sup>s</sup> .45	+ 1 <sup>s</sup> .71	5 <sup>s</sup> .16	23 <sup>s</sup> .09				
	2058	+ 25 6	S		50 19 <sup>s</sup> .40	+ 1 <sup>s</sup> .17	20 <sup>s</sup> .57	S		16 41 <sup>s</sup> .92	+ 1 <sup>s</sup> .72	43 <sup>s</sup> .64	23 <sup>s</sup> .07				
	2097	+ 28 18	S		55 47 <sup>s</sup> .14	+ 1 <sup>s</sup> .18	48 <sup>s</sup> .32	S		22 9 <sup>s</sup> .54	+ 1 <sup>s</sup> .73	11 <sup>s</sup> .27	22 <sup>s</sup> .95				
Dec. 6	2178	+ 28 18	N	<i>I. P. W.</i>	6 6 48 <sup>s</sup> .78	- 1 <sup>s</sup> .18	47 <sup>s</sup> .60	N	<i>I. P. W.</i>	6 33 12 <sup>s</sup> .58	- 1 <sup>s</sup> .75	10 <sup>s</sup> .83	26 23 <sup>s</sup> .23				
	2194	+ 25 15	N	<i>d</i>	9 34 <sup>s</sup> .28	- 1 <sup>s</sup> .19	33 <sup>s</sup> .09	N	<i>d</i>	35 57 <sup>s</sup> .95	- 1 <sup>s</sup> .76	56 <sup>s</sup> .19	23 <sup>s</sup> .10				
	2201	+ 48 55	N	<i>c</i> - 1 <sup>s</sup> .5 <i>b</i> + 1 <sup>s</sup> .1 <i>a</i> - 6 <sup>s</sup> .5	11 35 <sup>s</sup> .04	- 1 <sup>s</sup> .12	33 <sup>s</sup> .92	N	<i>c</i> - 0 <sup>s</sup> .5 <i>b</i> - 0 <sup>s</sup> .2 <i>a</i> - 9 <sup>s</sup> .5	37 58 <sup>s</sup> .78	- 1 <sup>s</sup> .65	57 <sup>s</sup> .13	23 <sup>s</sup> .21				
	2235	+ 39 1	N	<i>s</i> <i>Q</i> - 1 <sup>s</sup> .18	17 48 <sup>s</sup> .89	- 1 <sup>s</sup> .15	47 <sup>s</sup> .74	N	<i>s</i> <i>Q</i> - 1 <sup>s</sup> .74	44 12 <sup>s</sup> .63	- 1 <sup>s</sup> .70	10 <sup>s</sup> .93	23 <sup>s</sup> .19				
	2129	+ 14 15	S		5 59 47 <sup>s</sup> .67	- 1 <sup>s</sup> .22	46 <sup>s</sup> .45	S		26 11 <sup>s</sup> .46	- 1 <sup>s</sup> .80	9 <sup>s</sup> .66	23 <sup>s</sup> .21	<i>m s</i> 26 23 <sup>s</sup> .187	+ 0 <sup>s</sup> .058		
	2149	+ 16 54	S		6 2 5 <sup>s</sup> .77	- 1 <sup>s</sup> .22	4 <sup>s</sup> .55	S		28 29 <sup>s</sup> .55	- 1 <sup>s</sup> .79	27 <sup>s</sup> .76	23 <sup>s</sup> .21				
	2163	+ 16 30	S		3 47 <sup>s</sup> .33	- 1 <sup>s</sup> .22	46 <sup>s</sup> .11	S		30 11 <sup>s</sup> .09	- 1 <sup>s</sup> .79	9 <sup>s</sup> .30	23 <sup>s</sup> .19				
	2178	+ 28 18	S		6 48 <sup>s</sup> .81	- 1 <sup>s</sup> .18	47 <sup>s</sup> .63	S		33 12 <sup>s</sup> .49	- 1 <sup>s</sup> .75	10 <sup>s</sup> .74	23 <sup>s</sup> .11				
	2216	+ 8 10	S		13 48 <sup>s</sup> .70	- 1 <sup>s</sup> .24	47 <sup>s</sup> .46	S		40 12 <sup>s</sup> .51	- 1 <sup>s</sup> .82	10 <sup>s</sup> .69	23 <sup>s</sup> .23				

NOTE.  $1^{\circ} = 0^{\circ} 025$ . Transcribing Equation *with* all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Campbell, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = + 0^s.006$ $C_N - C_S = + 0^s.045$	$\delta L_N + \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 7	2001	+ 29 32	N	<i>I. P. E.</i>	5 40 40.27	+ 1.32	41.59	N	<i>I. P. E.</i>	6 7 3.00	+ 1.69	4.69	26 23.10				
	2081	+ 46 46	N	<i>d</i>	54 3.56	+ 1.62	5.18	N	<i>d</i>	20 26.50	+ 1.73	28.23	23.05				
	2097	+ 28 18	N	<i>c + 1.7</i> <i>b + 3.1</i> <i>a - 25.3</i>	55 43.89	+ 1.31	45.20	N	<i>c - 1.4</i> <i>b + 0.9</i> <i>a - 3.8</i>	22 6.61	+ 1.69	8.30	23.10				
	1971	+ 23 8	S	<i>s</i>	35 22.62	+ 1.25	23.87	S	<i>s</i>	1 45.23	+ 1.69	46.92	23.05				
	1975	+ 23 1	S	<i>Q + 1.17</i>	36 8.98	+ 1.25	10.23	S	<i>Q + 1.71</i>	2 31.62	+ 1.69	33.31	23.08				
	1987	+ 22 56	S		27 58.42	+ 1.25	59.67	S		4 21.00	+ 1.69	22.69	23.02	<i>m s</i>	+ 0.061	+	0.026
	2047	+ 22 34	S		48 37.78	+ 1.25	39.03	S		15 0.36	+ 1.69	2.05	23.02				
	2058	+ 25 6	S		50 16.19	+ 1.28	17.47	S		16 38.87	+ 1.70	40.57	23.10				
	2097	+ 28 18	S		55 43.90	+ 1.31	45.21	S		22 6.41	+ 1.69	8.10	22.89				
Dec. 7	2178	+ 28 18	N	<i>I. P. E.</i>	6 6 45.60	- 1.03	44.57	N	<i>I. P. E.</i>	6 33 9.45	- 1.73	7.72	26 23.15				
	2194	+ 25 15	N	<i>d</i>	9 31.14	- 1.06	30.08	N	<i>d</i>	35 54.80	- 1.72	53.08	23.00				
	2201	+ 48 55	N	<i>c + 1.7</i> <i>b + 3.1</i> <i>a - 25.3</i>	11 31.64	- 0.68	30.96	N	<i>c - 1.4</i> <i>b + 0.9</i> <i>a - 3.8</i>	37 55.65	- 1.68	53.97	23.01				
	2235	+ 39 1	N	<i>s</i>	17 45.59	- 0.87	44.72	N	<i>s</i>	44 9.49	- 1.70	7.79	23.07				
	2129	+ 14 15	S	<i>Q - 1.17</i>	5 59 44.68	- 1.19	43.49	S	<i>Q - 1.71</i>	26 8.24	- 1.74	6.50	23.01				
	2149	+ 16 54	S		6 2 2.76	- 1.16	1.60	S		28 26.35	- 1.74	24.61	23.01	<i>m s</i>	+ 0.061	+	0.022
	2163	+ 16 30	S		3 44.27	- 1.16	43.11	S		30 7.88	- 1.74	6.14	23.03				
	2178	+ 28 18	S		6 45.67	- 1.03	44.64	S		33 9.30	- 1.73	7.57	22.93				
	2216	+ 8 10	S		13 45.72	- 1.24	44.48	S		40 9.24	- 1.75	7.49	23.01				

NOTE. 1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation #4, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 81'$ , Long. $5^h 55^m 7^s$ , AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns for Persl. Equations $S_N - S_S = + 0^s.006$ $H_N - H_S = + 0^s.003$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 8	2001	+ 29 32	N	<i>I. P. W.</i>	5 40 36.84	+ 1.16	38.00	N	<i>I. P. W.</i>	6 6 59.51	+ 1.69	61.20	26 23.20			
	2081	+ 46 46	N	<i>d</i>	54 0 0.3	+ 1.61	1.64	N	<i>d</i>	20 23.09	+ 1.79	24.88	23.24			
	2097	+ 28 18	N	<i>c - 1.6</i> <i>b - 0.6</i> <i>a - 45.8</i>	55 40.49	+ 1.14	41.63	N	<i>c - 0.7</i> <i>b - 0.6</i> <i>a - 9.4</i>	22 3.17	+ 1.69	4.86	23.23			
	1971	+ 23 8	S	<i>s</i> <i>Q + 1.16</i>	35 19.23	+ 1.04	20.27	S	<i>s</i> <i>Q + 1.72</i>	1 41.77	+ 1.68	43.45	23.18			
	1975	+ 23 1	S		36 5.64	+ 1.04	6.68	S		2 28.15	+ 1.68	29.83	23.15			
	1987	+ 22 56	S		37 55.00	+ 1.04	56.04	S		4 17.55	+ 1.67	19.22	23.18			
	2047	+ 22 34	S		48 34.37	+ 1.03	35.40	S		14 56.91	+ 1.67	58.58	23.18			
	2058	+ 25 6	S		50 12.80	+ 1.08	13.88	S		16 35.41	+ 1.68	37.09	23.21			
Dec. 8	2178	+ 28 18	N	<i>I. P. W.</i>	6 6 42.21	- 1.18	41.03	N	<i>I. P. W.</i>	6 33 5.94	- 1.75	4.19	26 23.16			
	2194	+ 25 15	N	<i>d</i>	9 27.69	- 1.23	26.46	N	<i>d</i>	35 51.32	- 1.76	49.56	23.10			
	2201	+ 48 55	N	<i>c - 1.6</i> <i>b - 0.6</i> <i>a - 45.8</i>	11 28.05	- 0.63	27.42	N	<i>c - 0.7</i> <i>b - 0.6</i> <i>a - 9.4</i>	37 52.13	- 1.64	50.49	23.07			
	2235	+ 39 1	N	<i>s</i> <i>Q - 1.16</i>	17 42.10	- 0.94	41.16	N	<i>s</i> <i>Q - 1.72</i>	44 6.06	- 1.70	4.36	23.20			
	2129	+ 14 15	S		5 59 41.28	- 1.44	39.84	S		26 4.76	- 1.80	2.96	23.12			
	2149	+ 16 54	S		6 1 59.39	- 1.39	58.00	S		28 22.90	- 1.79	21.11	23.11			
	2168	+ 16 30	S		3 40.88	- 1.40	39.48	S		30 4.37	- 1.79	2.58	23.10			
	2178	+ 28 18	S		6 42.21	- 1.18	41.03	S		33 5.85	- 1.75	4.10	23.07			
	2216	+ 8 10	S		13 42.40	- 1.54	40.86	S		40 5.86	- 1.82	4.04	23.18			
Dec. 9	2001	+ 29 32	N	<i>I. P. E.</i>	5 40 33.68	+ 1.21	34.89	N	<i>I. P. E.</i>	6 6 56.27	+ 1.66	57.93	26 23.04			
	2097	+ 28 18	N	<i>d</i>	55 37.30	+ 1.20	38.50	N	<i>d</i>	21 59.91	+ 1.66	61.57	23.07			
	1971	+ 23 8	S	<i>c - 0.2</i> <i>b - 0.0</i> <i>a - 32.2</i>	35 16.13	+ 1.13	17.26	S	<i>c - 1.3</i> <i>b - 1.2</i> <i>a - 9.5</i>	1 38.59	+ 1.64	40.23	22.97			
	1975	+ 23 1	S	<i>s</i> <i>Q + 1.18</i>	36 2.38	+ 1.13	3.51	S	<i>s</i> <i>Q + 1.71</i>	2 24.90	+ 1.64	26.54	23.03			
	1987	+ 22 56	S		37 51.80	+ 1.13	52.93	S		4 14.40	+ 1.64	16.04	23.11			
	2047	+ 22 34	S		48 31.18	+ 1.13	32.31	S		14 53.62	+ 1.63	55.25	22.94			
	2058	+ 25 6	S		50 9.65	+ 1.16	10.81	S		16 32.13	+ 1.64	33.77	22.96			
	2097	+ 28 18	S		55 37.27	+ 1.20	38.37	S		21 59.73	+ 1.66	61.39	23.02			

NOTE.  $1^s = 0^s.0225$ . Transcribing Equation  $\omega$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

JALPAIGURI (E) Lat. 26° 81', Long. 85° 55' 7": AND FYZABAD (W) Lat. 26° 47', Long. 85° 28' 42".																		
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = + 0.006$ $H_N - H_S = + 0.003$	$\delta L_N + \rho$	
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group				
1882 Dec. 9	2194	+ 25 15	N	<i>I. P. E.</i>	<i>h m s</i> 6 9 24.59	-1.20	23.39	N	<i>I. P. E.</i>	<i>h m s</i> 6 35 48.09	-1.78	46.31	<i>m s</i> 26 22.92	<i>m s</i> 26 23.034	+ 0.060	- 0.003	26 23.092	
	2201	+ 48 55	N	<i>d</i> <i>c</i> - 0.2 <i>b</i> 0.0 <i>a</i> - 32.2	11 25.04	-0.77	24.27	N	<i>d</i> <i>c</i> - 1.3 <i>b</i> - 1.2 <i>a</i> - 9.5	37 48.96	-1.67	47.29	23.02					
	2235	+ 39 1	N	<i>s</i> <i>Q</i> - 1.18	17 38.97	-0.99	37.98	N	<i>s</i> <i>Q</i> - 1.71	44 2.68	-1.72	0.96	22.98					
	2129	+ 14 15	S		5 59 38.09	-1.34	36.75	S		25 61.64	-1.82	59.82	23.07					
	2149	+ 16 54	S		6 1 56.16	-1.31	54.85	S		28 19.74	-1.81	17.93	23.08					
	2163	+ 16 30	S		3 37.67	-1.31	36.36	S		29 61.24	-1.81	59.43	23.07					
	2216	+ 8 10	S		13 39.18	-1.41	37.77	S		40 2.71	-1.84	0.87	23.10					
Dec. 11	2001	+ 29 32	N	<i>I. P. W.</i>	5 40 26.84	+1.15	27.99	N	<i>I. P. W.</i>	6 6 49.38	+1.66	51.04	26 23.05	<i>m s</i> 26 23.064	+ 0.063	- 0.002	26 23.125	
	2081	+ 46 46	N	<i>d</i> <i>c</i> - 1.9 <i>b</i> - 0.4 <i>a</i> - 23.9	53 50.22	+1.38	51.60	N	<i>d</i> <i>c</i> - 1.5 <i>b</i> - 1.5 <i>a</i> - 17.7	20 12.84	+1.82	14.66	23.06					
	2097	+ 28 18	N	<i>s</i> <i>Q</i> + 1.18	55 30.57	+1.14	31.71	N	<i>s</i> <i>Q</i> + 1.72	21 53.02	+1.65	54.67	22.96					
	1971	+ 23 8	S		35 9.10	+1.09	10.19	S		1 31.64	+1.61	33.25	23.06					
	1975	+ 23 1	S		35 55.45	+1.08	56.53	S		2 17.99	+1.61	19.60	23.07					
	1987	+ 22 56	S		37 44.85	+1.08	45.93	S		4 7.51	+1.61	9.12	23.19					
	2047	+ 22 34	S		48 24.29	+1.08	25.37	S		14 46.82	+1.61	48.43	23.06					
	2058	+ 25 6	S		50 2.74	+1.11	3.85	S		16 25.31	+1.63	26.94	23.09	<i>m s</i> 26 23.074	+ 0.063	- 0.002	26 23.135	
	2097	+ 28 18	S		55 30.44	+1.14	31.58	S		21 52.97	+1.65	54.62	23.04					
Dec. 11	2178	+ 28 18	N	<i>I. P. W.</i>	6 6 32.18	-1.22	30.96	N	<i>I. P. W.</i>	6 32 55.84	-1.79	54.05	26 23.09					
	2194	+ 25 15	N	<i>d</i> <i>c</i> - 1.9 <i>b</i> - 0.4 <i>a</i> - 23.9	9 17.62	-1.25	16.37	N	<i>d</i> <i>c</i> - 1.5 <i>b</i> - 1.5 <i>a</i> - 17.7	35 41.24	-1.81	39.43	23.06					
	2201	+ 48 55	N	<i>s</i> <i>Q</i> - 1.18	11 18.26	-0.95	17.31	N	<i>s</i> <i>Q</i> - 1.72	37 41.90	-1.59	40.31	23.00					
	2235	+ 39 1	N		17 32.18	-1.10	31.08	N		43 55.80	-1.69	54.11	23.03					
	2129	+ 14 15	S		5 59 31.12	-1.35	29.77	S		25 54.74	-1.87	52.87	23.10					
	2149	+ 16 54	S		6 1 49.22	-1.32	47.90	S		28 12.84	-1.86	10.98	23.08	<i>m s</i> 26 23.074	+ 0.063	- 0.002	26 23.135	
	2163	+ 16 30	S		3 30.72	-1.33	29.39	S		29 54.38	-1.86	52.52	23.13					
	2178	+ 28 18	S		6 32.16	-1.22	30.94	S		32 55.75	-1.79	53.96	23.02					
	2216	+ 8 10	S		13 32.16	-1.40	30.76	S		39 55.83	-1.91	53.92	23.16					

NOTE.  $1^s = 0.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = - 0^s.009$ $H_N - H_S = - 0^s.008$	$M_N$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 21	1669	+ 31 2	N	<i>I. P. W.</i>	5 17 5'95	+ 1'50	7'45	N	<i>I. P. W.</i>	5 17 33'35	+ 1'81	35'16	+ 0 27'71				
	1681	+ 28 31	N	<i>d</i>	18 53'44	+ 1'50	54'94	N	<i>d</i>	19 20'76	+ 1'79	22'55	27'61				
	1709	+ 29 6	N	<i>c</i> + 0'5 <i>b</i> + 1'3 <i>a</i> + 1'5	22 14'34	+ 1'50	15'84	N	<i>c</i> + 1'9 <i>b</i> + 1'2 <i>a</i> - 15'0	22 41'73	+ 1'79	43'52	27'68				
	1637	+ 21 59	S	<i>s</i> <i>Q</i> + 1'46	12 14'33	+ 1'50	15'83	S	<i>s</i> <i>Q</i> + 1'67	12 41'78	+ 1'75	43'53	27'70	<i>m s</i> + 0 27'680			
	1656	+ 8 19	S		15 20'72	+ 1'51	22'23	S		15 48'27	+ 1'66	49'93	27'70				
	1692	+ 17 52	S		20 20'01	+ 1'51	21'52	S		20 47'50	+ 1'71	49'21	27'69				
	1714	+ 22 22	S		23 39'14	+ 1'50	40'64	S		24 6'56	+ 1'75	8'31	27'67				
				Mean, $T_E$	5 18 33												
Dec. 21	1754	+ 26 51	N	<i>I. P. W.</i>	5 29 52'97	- 1'42	51'59	N	<i>I. P. W.</i>	5 30 20'74	- 1'56	19'18	+ 0 27'59				
	1772	+ 29 9	N	<i>d</i>	31 54'57	- 1'42	53'15	N	<i>d</i>	32 22'33	- 1'54	20'79	27'64				
	1824	+ 39 30	N	<i>c</i> + 0'5 <i>b</i> + 1'3 <i>a</i> + 1'5	40 46'62	- 1'42	45'20	N	<i>c</i> + 1'9 <i>b</i> + 1'2 <i>a</i> - 15'0	41 14'21	- 1'45	12'76	27'56				
	1742	+ 23 58	S	<i>s</i> <i>Q</i> - 1'46	28 20'86	- 1'42	19'44	S	<i>s</i> <i>Q</i> - 1'67	28 48'70	- 1'58	47'12	27'68	<i>m s</i> + 0 27'664			
	1782	+ 4 3	S		33 2'61	- 1'41	1'20	S		33 30'66	- 1'71	28'95	27'75				
	1792	+ 16 28	S		34 34'29	- 1'41	32'88	S		35 2'20	- 1'64	0'56	27'68				
	1811	+ 18 39	S		38 21'62	- 1'42	20'20	S		38 49'57	- 1'62	47'95	27'75				
				Mean, $T_E$	5 33 51												
Dec. 26	1648	+ 27 50	N	<i>I. P. E.</i>	5 13 26'07	+ 1'53	27'60	N	<i>I. P. E.</i>	5 13 55'07	+ 1'64	56'71	+ 0 29'11				
	1669	+ 31 2	N	<i>d</i>	16 53'76	+ 1'53	55'29	N	<i>d</i>	17 22'78	+ 1'61	24'39	29'10				
	1681	+ 28 31	N	<i>c</i> + 0'6 <i>b</i> + 2'6 <i>a</i> - 0'3	18 41'27	+ 1'53	42'80	N	<i>c</i> + 0'2 <i>b</i> + 0'6 <i>a</i> + 20'8	19 10'27	+ 1'63	11'90	29'10				
	1709	+ 29 6	N	<i>s</i> <i>Q</i> + 1'44	22 2'21	+ 1'53	3'74	N	<i>s</i> <i>Q</i> + 1'66	22 31'24	+ 1'63	32'87	29'13	<i>m s</i> + 0 29'096			
	1637	+ 21 59	S		12 2'27	+ 1'51	3'78	S		12 31'20	+ 1'67	32'87	29'09				
	1656	+ 8 19	S		15 8'62	+ 1'51	10'13	S		15 37'38	+ 1'79	39'17	29'04				
	1692	+ 17 52	S		20 7'88	+ 1'51	9'39	S		20 36'78	+ 1'71	38'49	29'10				
				Mean, $T_E$	5 16 55												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *212*, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> 009 H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>o</sup> 008	M <sub>N</sub>
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882 Dec. 26	1754	+ 26 51	N	<i>I. P. E.</i>	5 29 40 <sup>o</sup> 76	- 1 <sup>o</sup> 35	39 <sup>o</sup> 41	N	<i>I. P. E.</i>	5 30 10 <sup>o</sup> 27	- 1 <sup>o</sup> 67	8 <sup>o</sup> 60	+ 0 29 <sup>o</sup> 19				
	1772	+ 29 9	N	<i>d</i>	31 42 <sup>o</sup> 34	- 1 <sup>o</sup> 35	40 <sup>o</sup> 99	N	<i>d</i>	32 11 <sup>o</sup> 87	- 1 <sup>o</sup> 69	10 <sup>o</sup> 18	29 <sup>o</sup> 19				
	1742	+ 23 58	S	<i>c</i> + 0 <sup>o</sup> 6 <i>b</i> + 2 <sup>o</sup> 6 <i>a</i> - 0 <sup>o</sup> 3	28 8 <sup>o</sup> 68	- 1 <sup>o</sup> 37	7 <sup>o</sup> 31	S	<i>c</i> + 0 <sup>o</sup> 2 <i>b</i> + 0 <sup>o</sup> 6 <i>a</i> + 20 <sup>o</sup> 8	28 38 <sup>o</sup> 11	- 1 <sup>o</sup> 66	36 <sup>o</sup> 45	29 <sup>o</sup> 14				
	1782	+ 4 3	S	<i>s</i>	32 50 <sup>o</sup> 54	- 1 <sup>o</sup> 38	49 <sup>o</sup> 16	S	<i>s</i>	33 19 <sup>o</sup> 66	- 1 <sup>o</sup> 50	18 <sup>o</sup> 16	29 <sup>o</sup> 00				
	1792	+ 16 28	S	<i>Q</i> - 1 <sup>o</sup> 44	34 22 <sup>o</sup> 17	- 1 <sup>o</sup> 37	20 <sup>o</sup> 80	S	<i>Q</i> - 1 <sup>o</sup> 66	34 51 <sup>o</sup> 49	- 1 <sup>o</sup> 60	49 <sup>o</sup> 89	29 <sup>o</sup> 09				
				Mean, T <sub>E</sub>	5 31 21												
Dec. 27	1648	+ 27 50	N	<i>I. P. W.</i>	5 13 23 <sup>o</sup> 00	+ 1 <sup>o</sup> 38	24 <sup>o</sup> 38	N	<i>I. P. W.</i>	5 13 52 <sup>o</sup> 83	+ 1 <sup>o</sup> 85	54 <sup>o</sup> 68	+ 0 30 <sup>o</sup> 30				
	1669	+ 31 2	N	<i>d</i>	16 50 <sup>o</sup> 62	+ 1 <sup>o</sup> 39	52 <sup>o</sup> 01	N	<i>d</i>	17 20 <sup>o</sup> 52	+ 1 <sup>o</sup> 82	22 <sup>o</sup> 34	30 <sup>o</sup> 33				
	1681	+ 28 31	N	<i>c</i> - 1 <sup>o</sup> 3 <i>b</i> - 1 <sup>o</sup> 2 <i>a</i> - 3 <sup>o</sup> 4	18 38 <sup>o</sup> 14	+ 1 <sup>o</sup> 38	39 <sup>o</sup> 52	N	<i>c</i> + 3 <sup>o</sup> 9 <i>b</i> + 5 <sup>o</sup> 1 <i>a</i> + 19 <sup>o</sup> 9	19 8 <sup>o</sup> 00	+ 1 <sup>o</sup> 85	9 <sup>o</sup> 85	30 <sup>o</sup> 33				
	1700	+ 29 6	N	<i>s</i>	21 59 <sup>o</sup> 10	+ 1 <sup>o</sup> 38	60 <sup>o</sup> 48	N	<i>s</i>	22 28 <sup>o</sup> 99	+ 1 <sup>o</sup> 84	30 <sup>o</sup> 83	30 <sup>o</sup> 35				
	1637	+ 21 59	S	<i>Q</i> + 1 <sup>o</sup> 44	11 59 <sup>o</sup> 11	+ 1 <sup>o</sup> 37	60 <sup>o</sup> 48	S	<i>Q</i> + 1 <sup>o</sup> 67	12 28 <sup>o</sup> 99	+ 1 <sup>o</sup> 88	30 <sup>o</sup> 87	30 <sup>o</sup> 39				
	1656	+ 8 19	S		15 5 <sup>o</sup> 48	+ 1 <sup>o</sup> 36	6 <sup>o</sup> 84	S		15 35 <sup>o</sup> 21	+ 1 <sup>o</sup> 98	37 <sup>o</sup> 19	30 <sup>o</sup> 35				
	1692	+ 17 52	S		20 4 <sup>o</sup> 75	+ 1 <sup>o</sup> 37	6 <sup>o</sup> 12	S		20 34 <sup>o</sup> 56	+ 1 <sup>o</sup> 92	36 <sup>o</sup> 48	30 <sup>o</sup> 36				
	1714	+ 22 22	S		23 23 <sup>o</sup> 85	+ 1 <sup>o</sup> 37	25 <sup>o</sup> 22	S		23 53 <sup>o</sup> 76	+ 1 <sup>o</sup> 88	55 <sup>o</sup> 64	30 <sup>o</sup> 42				
				Mean, T <sub>E</sub>	5 17 41												
Dec. 27	1754	+ 26 51	N	<i>I. P. W.</i>	5 29 37 <sup>o</sup> 61	- 1 <sup>o</sup> 50	36 <sup>o</sup> 11	N	<i>I. P. W.</i>	5 30 8 <sup>o</sup> 04	- 1 <sup>o</sup> 48	6 <sup>o</sup> 56	+ 0 30 <sup>o</sup> 45				
	1772	+ 29 9	N	<i>d</i>	31 39 <sup>o</sup> 27	- 1 <sup>o</sup> 50	37 <sup>o</sup> 77	N	<i>d</i>	32 9 <sup>o</sup> 61	- 1 <sup>o</sup> 50	8 <sup>o</sup> 11	30 <sup>o</sup> 34				
	1804	+ 49 46	N	<i>c</i> - 1 <sup>o</sup> 3 <i>b</i> - 1 <sup>o</sup> 2 <i>a</i> - 3 <sup>o</sup> 4	36 38 <sup>o</sup> 17	- 1 <sup>o</sup> 48	36 <sup>o</sup> 69	N	<i>c</i> + 3 <sup>o</sup> 9 <i>b</i> + 5 <sup>o</sup> 1 <i>a</i> + 19 <sup>o</sup> 9	37 8 <sup>o</sup> 85	- 1 <sup>o</sup> 69	7 <sup>o</sup> 16	30 <sup>o</sup> 47				
	1824	+ 39 30	N	<i>s</i>	40 31 <sup>o</sup> 18	- 1 <sup>o</sup> 49	29 <sup>o</sup> 69	N	<i>s</i>	41 1 <sup>o</sup> 70	- 1 <sup>o</sup> 59	0 <sup>o</sup> 11	30 <sup>o</sup> 42				
	1742	+ 23 58	S	<i>Q</i> - 1 <sup>o</sup> 44	28 5 <sup>o</sup> 47	- 1 <sup>o</sup> 50	3 <sup>o</sup> 97	S	<i>Q</i> - 1 <sup>o</sup> 67	28 35 <sup>o</sup> 90	- 1 <sup>o</sup> 45	34 <sup>o</sup> 45	30 <sup>o</sup> 48				
	1782	+ 4 3	S		32 47 <sup>o</sup> 35	- 1 <sup>o</sup> 52	45 <sup>o</sup> 83	S		33 17 <sup>o</sup> 59	- 1 <sup>o</sup> 33	16 <sup>o</sup> 26	30 <sup>o</sup> 43				
	1792	+ 16 28	S		34 19 <sup>o</sup> 01	- 1 <sup>o</sup> 51	17 <sup>o</sup> 50	S		34 49 <sup>o</sup> 35	- 1 <sup>o</sup> 41	47 <sup>o</sup> 94	30 <sup>o</sup> 44				
	1811	+ 18 39	S		38 6 <sup>o</sup> 35	- 1 <sup>o</sup> 51	4 <sup>o</sup> 84	S		38 36 <sup>o</sup> 65	- 1 <sup>o</sup> 43	35 <sup>o</sup> 22	30 <sup>o</sup> 38				
				Mean, T <sub>E</sub>	5 33 58												

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\pi H$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = -0.009$ $H_N - H_S = -0.008$	$M_N$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 28	1648	+ 27 50	N	<i>I. P. E.</i>	5 13 20.29	+ 1.48	21.77	N	<i>I. P. E.</i>	5 13 50.38	+ 1.84	52.22	+ 0 30.45				
	1669	+ 31 2	N	<i>c + 0.6</i>	16 48.03	+ 1.45	49.48	N	<i>c + 1.6</i>	17 18.10	+ 1.84	19.94	30.46				
	1681	+ 28 31	N	<i>b + 0.6</i> <i>a + 17.1</i>	18 35.57	+ 1.47	37.04	N	<i>b + 6.5</i> <i>a + 11.1</i>	19 5.56	+ 1.85	7.41	30.37				
	1709	+ 29 6	N	<i>s</i> <i>Q + 1.45</i>	21 56.47	+ 1.47	57.94	N	<i>s</i> <i>Q + 1.67</i>	22 26.56	+ 1.85	28.41	30.47				
	1637	+ 21 59	S		11 56.43	+ 1.50	57.93	S		12 26.51	+ 1.87	28.38	30.45	<i>m s</i> + 0 30.456			
	1656	+ 8 19	S		15 2.67	+ 1.59	4.26	S		15 32.86	+ 1.91	34.77	30.51				
	1692	+ 17 52	S		20 2.05	+ 1.53	3.58	S		20 32.16	+ 1.88	34.04	30.46				
	1714	+ 22 22	S		23 21.17	+ 1.50	22.67	S		23 51.28	+ 1.87	53.15	30.48				
				Mean, $T_R$	5 17.38												
Dec. 28	1754	+ 26 51	N	<i>I. P. E.</i>	5 29 35.02	- 1.41	33.61	N	<i>I. P. E.</i>	5 30 5.57	- 1.49	4.08	+ 0 30.47				
	1772	+ 29 9	N	<i>c + 0.6</i>	31 36.66	- 1.43	35.23	N	<i>c + 1.6</i>	32 7.15	- 1.49	5.66	30.43				
	1804	+ 49 46	N	<i>b + 0.6</i> <i>a + 17.1</i>	36 35.84	- 1.64	34.20	N	<i>b + 6.5</i> <i>a + 11.1</i>	37 6.29	- 1.59	4.70	30.50				
	1824	+ 39 30	N	<i>s</i> <i>Q - 1.45</i>	40 28.67	- 1.52	27.15	N	<i>s</i> <i>Q - 1.67</i>	40 59.14	- 1.53	57.61	30.46				
	1782	+ 4 3	S		32 44.59	- 1.28	43.31	S		33 15.16	- 1.41	13.75	30.44	<i>m s</i> + 0 30.466			
	1792	+ 16 28	S		34 16.35	- 1.36	14.99	S		34 46.90	- 1.45	45.45	30.46				
	1811	+ 18 39	S		38 3.67	- 1.38	2.29	S		38 34.25	- 1.46	32.79	30.50				
				Mean, $T_R$	5 34.46												
Dec. 29	1648	+ 27 50	N	<i>I. P. W.</i>	5 13 17.30	+ 1.40	18.70	N	<i>I. P. W.</i>	5 13 48.25	+ 1.84	50.09	+ 0 31.39				
	1669	+ 31 2	N	<i>c - 1.6</i>	16 44.94	+ 1.41	46.35	N	<i>c + 2.3</i>	17 15.98	+ 1.83	17.81	31.46				
	1681	+ 28 31	N	<i>b - 0.7</i> <i>a - 8.9</i>	18 32.46	+ 1.40	33.86	N	<i>b + 5.6</i> <i>a + 12.7</i>	19 3.46	+ 1.84	5.30	31.44				
	1709	+ 29 6	N	<i>s</i> <i>Q + 1.45</i>	21 53.44	+ 1.40	54.84	N	<i>s</i> <i>Q + 1.67</i>	22 24.44	+ 1.83	26.27	31.43				
	1637	+ 21 59	S		11 53.47	+ 1.37	54.84	S		12 24.27	+ 1.87	26.14	31.30	<i>m s</i> + 0 31.415			
	1656	+ 8 19	S		14 59.80	+ 1.33	61.13	S		15 30.59	+ 1.91	32.50	31.37				
	1692	+ 17 52	S		19 59.05	+ 1.36	60.41	S		20 30.01	+ 1.88	31.89	31.48				
	1714	+ 22 22	S		23 18.19	+ 1.37	19.56	S		23 49.14	+ 1.87	51.01	31.45				
				Mean, $T_R$	5 17.35												

NOTE.— $1^s = 0.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

JALPAIGURI (E) Lat. 26° 81', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 83', Long. 6 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $S_N - S_S = - 0.009$ $H_N - H_S = - 0.008$	$M_N$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882 Dec. 29	1754.	+ 26 51	N	<i>I. P. W.</i>	<i>h m s</i> 5 29 32.02	-1.51	30.51	N	<i>I. P. W.</i>	<i>h m s</i> 5 30 3.38	-1.49	1.89	+ 0 31.38	<i>m s</i> + 0 31.415	+ 0.003	+	+
	1772	+ 29 9	N	<i>c</i> - 1.6 <i>d</i> <i>b</i> - 0.7 <i>a</i> - 8.9	31 33.63	-1.50	32.13	N	<i>c</i> + 2.3 <i>d</i> <i>b</i> + 5.6 <i>a</i> + 12.7	32 5.05	-1.51	3.54	31.41				
	1804	+ 49 46	N	<i>s</i>	36 32.56	-1.41	31.15	N	<i>s</i>	37 4.25	-1.62	2.63	31.48				
	1824	+ 39 30	N	<i>Q</i> - 1.45	40 25.61	-1.46	24.15	N	<i>Q</i> - 1.67	40 57.08	-1.55	55.53	31.38				
	1742	+ 23 58	S		27 59.91	-1.52	58.39	S		28 31.27	-1.48	29.79	31.40				
	1782	+ 4 3	S		32 41.71	-1.58	40.13	S		33 13.00	-1.41	11.59	31.46				
	1792	+ 16 28	S		34 13.44	-1.55	11.89	S		34 44.72	-1.46	43.26	31.37				
	1811	+ 18 39	S		37 60.72	-1.54	59.18	S		38 32.09	-1.47	30.62	31.44				
Mean, $T_E$					5 33 52												
1883 Jan. 2	1648	+ 27 50	N	<i>I. P. E.</i>	<i>h m s</i> 5 13 4.94	+1.38	6.32	N	<i>I. P. E.</i>	<i>h m s</i> 5 13 38.75	+1.50	40.25	+ 0 33.93	<i>m s</i> + 0 33.918	+ 0.002	+	+
	1669	+ 31 2	N	<i>c</i> - 1.0 <i>d</i> <i>b</i> - 1.1 <i>a</i> + 0.9	16 32.68	+1.38	34.06	N	<i>c</i> - 2.3 <i>d</i> <i>b</i> - 4.1 <i>a</i> + 3.6	17 6.48	+1.49	7.97	33.91				
	1681	+ 28 31	N	<i>s</i>	18 20.18	+1.38	21.56	N	<i>s</i>	18 53.94	+1.50	55.44	33.88				
	1709	+ 29 6	N	<i>Q</i> + 1.44	21 41.09	+1.38	42.47	N	<i>Q</i> + 1.67	22 14.92	+1.50	16.42	33.95				
	1637	+ 21 59	S		11 41.04	+1.39	42.43	S		12 14.95	+1.51	16.46	34.03				
	1656	+ 8 19	S		14 47.44	+1.41	48.85	S		15 21.16	+1.55	22.71	33.86				
	1692	+ 17 52	S		19 46.78	+1.39	48.17	S		20 20.56	+1.53	22.09	33.92				
	1714	+ 22 22	S		23 5.89	+1.39	7.28	S		23 39.63	+1.51	41.14	33.86				
Mean, $T_E$					5 17 23												
Jan. 2	1754	+ 26 51	N	<i>I. P. E.</i>	<i>h m s</i> 5 29 19.62	-1.50	18.12	N	<i>I. P. E.</i>	<i>h m s</i> 5 29 53.95	-1.84	52.11	+ 0 33.99	<i>m s</i> + 0 33.885	+ 0.002	+	+
	1772	+ 29 9	N	<i>c</i> - 1.0 <i>d</i> <i>b</i> - 1.1 <i>a</i> + 0.9	31 21.28	-1.50	19.78	N	<i>c</i> - 2.3 <i>d</i> <i>b</i> - 4.1 <i>a</i> + 3.6	31 55.54	-1.84	53.70	33.92				
	1804	+ 49 46	N	<i>s</i>	36 20.36	-1.52	18.84	N	<i>s</i>	36 54.59	-1.94	52.65	33.81				
	1824	+ 39 30	N	<i>Q</i> - 1.44	40 13.20	-1.51	11.69	N	<i>Q</i> - 1.67	40 47.51	-1.88	45.63	33.94				
	1742	+ 23 58	S		27 47.56	-1.49	46.07	S		28 21.77	-1.83	19.94	33.87				
	1782	+ 4 3	S		32 29.36	-1.47	27.89	S		33 3.44	-1.78	1.66	33.77				
	1792	+ 16 28	S		33 60.99	-1.49	59.50	S		35 35.20	-1.81	33.39	33.89				
	1811	+ 18 39	S		37 48.31	-1.49	46.82	S		38 22.52	-1.81	20.71	33.89				
Mean, $T_E$					5 33 40												

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\pi$ 7, all records having been transcribed by the same person.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $85^{\circ} 53' 36''$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $S_N - S_S = -0.009$ $H_N - H_S = -0.008$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 21	1408	+ 28 43	N	<i>I. P. W.</i>	4 27 18.41	+1.50	19.91	N	<i>I. P. W.</i>	4 28 48.63	+1.79	50.42	1 30.51				
	1414	+ 41 1	N	<i>d</i>	28 35.12	+1.50	36.62	N	<i>d</i>	30 5.24	+1.90	7.14	30.52				
	1424	+ 53 15	N	<i>c + 0.5</i> <i>b + 1.3</i> <i>a + 1.5</i>	30 42.62	+1.49	44.11	N	<i>c + 1.9</i> <i>b + 1.2</i> <i>a - 15.0</i>	32 12.55	+2.07	14.62	30.51				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.46</i>	34 0.11	+1.50	1.61	N	<i>s</i> <i>Q + 1.67</i>	35 30.31	+1.79	32.10	30.49				
	1376	+ 18 55	S		21 46.52	+1.50	48.02	S		23 16.88	+1.73	18.61	30.59				
	1390	+ 15 23	S		23 27.70	+1.51	29.21	S		24 58.10	+1.69	59.79	30.58				
	1392	+ 15 26	S		23 57.83	+1.51	59.34	S		25 28.18	+1.70	29.88	30.54				
	1402	+ 15 36	S		25 10.15	+1.51	11.66	S		26 40.52	+1.70	42.22	30.56				
Dec. 21	1475	+ 32 23	N	<i>I. P. W.</i>	4 41 47.65	-1.42	46.23	N	<i>I. P. W.</i>	4 43 18.31	-1.52	16.79	1 30.56				
	1492	+ 36 30	N	<i>d</i>	44 50.93	-1.42	49.51	N	<i>d</i>	46 21.54	-1.49	20.05	30.54				
	1510	+ 43 39	N	<i>c + 0.5</i> <i>b + 1.3</i> <i>a + 1.5</i>	53 37.54	-1.41	36.13	N	<i>c + 1.9</i> <i>b + 1.2</i> <i>a - 15.0</i>	55 8.06	-1.41	6.65	30.52				
	1468	+ 18 31	S	<i>s</i> <i>Q - 1.46</i>	39 29.29	-1.42	27.87	S	<i>s</i> <i>Q - 1.67</i>	40 60.00	-1.63	58.37	30.50				
	1512	+ 16 12	S		48 13.94	-1.41	12.53	S		49 44.72	-1.64	43.08	30.55				
	1527	+ 23 46	S		50 45.25	-1.42	43.83	S		52 15.97	-1.58	14.39	30.56				
Dec. 26	1408	+ 28 43	N	<i>I. P. E.</i>	4 27 6.28	+1.53	7.81	N	<i>I. P. E.</i>	4 28 35.96	+1.63	37.59	1 29.78				
	1414	+ 41 1	N	<i>d</i>	28 22.92	+1.54	24.46	N	<i>d</i>	29 52.87	+1.49	54.36	29.90				
	1424	+ 53 15	N	<i>c + 0.6</i> <i>b + 2.6</i> <i>a - 0.3</i>	30 30.36	+1.56	31.92	N	<i>c + 0.2</i> <i>b + 0.6</i> <i>a + 20.8</i>	32 0.53	+1.29	1.82	29.90				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.44</i>	33 47.96	+1.53	49.49	N	<i>s</i> <i>Q + 1.66</i>	35 17.69	+1.64	19.33	29.84				

NOTE.— $1^d = 0.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 86 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $S_N - S_S = - 0^s.009$ $H_N - H_S = - 0^s.008$	$\delta L_N - \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 26	1475	+ 32 23	N	<i>I. P. E.</i>	4 41 35.51	-1.35	34.16	N	<i>I. P. E.</i>	4 43 5.79	-1.73	4.06	1 29.90				
	1490	+ 36 27	N	<i>c + 0.6</i> <i>d</i>	44 20.81	-1.35	19.46	N	<i>c + 0.2</i> <i>d</i>	45 51.23	-1.77	49.46	30.00				
	1492	+ 36 30	N	<i>b + 2.6</i> <i>a - 0.3</i>	44 38.69	-1.35	37.34	N	<i>b + 0.6</i> <i>a + 20.8</i>	46 9.05	-1.77	7.28	29.94				
	1540	+ 43 39	N	<i>s</i> <i>Q - 1.44</i>	53 25.36	-1.34	24.02	N	<i>s</i> <i>Q - 1.66</i>	54 55.79	-1.87	53.92	29.90	<i>m s</i> 1 29.921	+ 0.003	0.001	
	1468	+ 18 31	S		39 17.17	-1.37	15.80	S		40 47.31	-1.61	45.70	29.90		+		
	1500	+ 14 3	S		45 44.93	-1.37	43.56	S		47 15.08	-1.58	13.50	29.94				
	1512	+ 16 12	S		48 1.81	-1.37	0.44	S		49 31.93	-1.60	30.33	29.89				
	1527	+ 23 46	S		50 33.12	-1.37	31.75	S		52 3.31	-1.66	1.65	29.90				
Dec. 27	1408	+ 28 43	N	<i>I. P. W.</i>	4 27 3.17	+1.38	4.55	N	<i>I. P. W.</i>	4 28 33.15	+1.84	34.99	1 30.44				
	1414	+ 41 1	N	<i>c - 1.3</i> <i>d</i>	28 19.92	+1.40	21.32	N	<i>c + 3.9</i> <i>d</i>	29 49.96	+1.74	51.70	30.38				
	1424	+ 53 15	N	<i>b - 1.2</i> <i>a - 3.4</i>	30 27.30	+1.41	28.71	N	<i>b + 5.1</i> <i>a + 19.9</i>	31 57.64	+1.60	59.24	30.53				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.44</i>	33 44.86	+1.38	46.24	N	<i>s</i> <i>Q + 1.67</i>	35 14.84	+1.85	16.69	30.45	<i>m s</i> 1 30.524	+ 0.003	0.001	
	1376	+ 18 55	S		21 31.26	+1.37	32.63	S		23 1.19	+1.91	3.10	30.47		+		
	1390	+ 15 23	S		23 12.44	+1.36	13.80	S		24 42.47	+1.94	44.41	30.61				
	1302	+ 15 26	S		23 42.59	+1.36	43.95	S		25 12.63	+1.94	14.57	30.62				
	1402	+ 15 36	S		24 54.89	+1.36	56.25	S		26 25.00	+1.94	26.94	30.69				
Dec. 27	1475	+ 32 23	N	<i>I. P. W.</i>	4 41 32.36	-1.49	30.87	N	<i>I. P. W.</i>	4 42 2.82	-1.53	1.29	1 30.42				
	1490	+ 36 27	N	<i>c - 1.3</i> <i>d</i>	44 17.67	-1.49	16.18	N	<i>c + 3.9</i> <i>d</i>	45 48.17	-1.55	46.62	30.44				
	1492	+ 36 30	N	<i>b - 1.2</i> <i>a - 3.4</i>	44 35.59	-1.49	34.10	N	<i>b + 5.1</i> <i>a + 19.9</i>	46 6.03	-1.55	4.48	30.38				
	1540	+ 43 39	N	<i>s</i> <i>Q - 1.44</i>	53 22.16	-1.49	20.67	N	<i>s</i> <i>Q - 1.67</i>	54 52.75	-1.62	51.13	30.46	<i>m s</i> 1 30.465	+ 0.003	0.001	
	1468	+ 18 31	S		39 13.98	-1.51	12.47	S		40 44.38	-1.43	42.95	30.48		+		
	1500	+ 14 3	S		45 41.74	-1.52	40.22	S		47 12.10	-1.39	10.71	30.49				
	1512	+ 16 12	S		47 58.58	-1.51	57.07	S		49 28.96	-1.41	27.55	30.48				
	1527	+ 23 46	S		50 29.86	-1.50	28.36	S		51 60.38	-1.45	58.93	30.57				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*JALPAIGURI (E) Lat.  $26^{\circ} 31'$ , Long.  $5^h 55^m 7^s$ : AND CALCUTTA (W) Lat.  $22^{\circ} 33'$ , Long.  $5^h 53^m 36^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock.	Corrs. for Persl. Equations $S_N - S = -0.009$ $H_N - H = -0.008$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 28	1408	+ 28 43	N	<i>I. P. E.</i>	4 27 0.49	+ 1.47	1.96	N	<i>I. P. E.</i>	4 28 30.08	+ 1.85	31.93	1 29.97				
	1414	+ 41 1	N	<i>c + 0.6</i> <i>d</i>	28 17.32	+ 1.36	18.68	N	<i>c + 1.6</i> <i>d</i>	29 46.82	+ 1.80	48.62	29.94				
	1424	+ 53 15	N	<i>b + 0.6</i> <i>a + 17.1</i>	30 24.89	+ 1.20	26.09	N	<i>b + 6.5</i> <i>a + 11.1</i>	31 54.42	+ 1.73	56.15	30.06				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.45</i>	33 42.11	+ 1.48	43.59	N	<i>s</i> <i>Q + 1.67</i>	35 11.69	+ 1.85	13.54	29.95				
	1376	+ 18 55	S		21 28.59	+ 1.52	30.11	S		22 58.15	+ 1.88	60.03	29.92	<i>m s</i> 1 29.960	+ 0.003		
	1390	+ 15 23	S		23 9.75	+ 1.55	11.30	S		24 39.32	+ 1.89	41.21	29.91				
	1392	+ 15 26	S		23 39.77	+ 1.55	41.32	S		25 9.45	+ 1.89	11.34	30.02				
	1402	+ 15 36	S		24 52.20	+ 1.55	53.75	S		26 21.77	+ 1.89	23.66	29.91				
Dec. 28	1475	+ 32 23	N	<i>I. P. E.</i>	4 41 29.75	- 1.46	28.29	N	<i>I. P. E.</i>	4 42 59.86	- 1.51	58.35	1 30.06				
	1490	+ 36 27	N	<i>c + 0.6</i> <i>d</i>	44 15.10	- 1.49	13.61	N	<i>c + 1.6</i> <i>d</i>	45 45.22	- 1.52	43.70	30.09				
	1492	+ 36 30	N	<i>b + 0.6</i> <i>a + 17.1</i>	44 33.01	- 1.49	31.52	N	<i>b + 6.5</i> <i>a + 11.1</i>	46 3.08	- 1.52	1.56	30.04				
	1540	+ 43 39	N	<i>s</i> <i>Q - 1.45</i>	53 19.69	- 1.57	18.12	N	<i>s</i> <i>Q - 1.67</i>	54 49.71	- 1.56	48.15	30.03				
	1468	+ 18 31	S		39 11.29	- 1.37	9.92	S		40 41.45	- 1.46	39.99	30.07	<i>m s</i> 1 30.063	+ 0.003		
	1500	+ 14 3	S		45 39.05	- 1.34	37.71	S		47 9.61	- 1.44	7.72	30.01				
	1512	+ 16 12	S		47 55.88	- 1.36	54.52	S		49 26.02	- 1.45	24.57	30.05				
	1527	+ 23 46	S		50 27.21	- 1.41	25.80	S		51 57.43	- 1.48	55.95	30.15				
Dec. 29	1408	+ 28 43	N	<i>I. P. W.</i>	4 26 57.48	+ 1.40	58.88	N	<i>I. P. W.</i>	4 28 27.56	+ 1.82	29.38	1 30.50				
	1414	+ 41 1	N	<i>c - 1.6</i> <i>d</i>	28 14.15	+ 1.45	15.60	N	<i>c + 2.3</i> <i>d</i>	29 44.41	+ 1.77	46.18	30.58				
	1424	+ 53 15	N	<i>b - 0.7</i> <i>a - 8.9</i>	30 21.60	+ 1.52	23.12	N	<i>b + 5.2</i> <i>a + 12.7</i>	31 52.04	+ 1.69	53.73	30.61				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.45</i>	33 39.19	+ 1.40	40.59	N	<i>s</i> <i>Q + 1.67</i>	35 9.13	+ 1.83	10.96	30.37				
	1376	+ 18 55	S		21 25.67	+ 1.36	27.03	S		22 55.58	+ 1.86	57.44	30.41	<i>m s</i> 1 30.479	+ 0.003		
	1390	+ 15 23	S		23 6.83	+ 1.35	8.18	S		24 36.78	+ 1.88	38.66	30.48				
	1392	+ 15 26	S		23 36.94	+ 1.35	38.29	S		25 6.85	+ 1.88	8.73	30.44				
	1402	+ 15 36	S		24 49.28	+ 1.35	50.63	S		26 19.19	+ 1.88	21.07	30.44				

NOTE.— $1^s = 0.0225$ . Transcribing Equation  $\text{mL}$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $S_N - S_S = -0^s.009$ $H_N - H_S = -0^s.008$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 29	1475	+ 32 23	N	<i>I. P. W.</i>	4 41 26.71	-1.49	25.22	N	<i>I. P. W.</i>	4 42 57.20	-1.53	55.67	1 30.45				
	1490	+ 36 27	N	<i>c - 1.6</i>	44 12.02	-1.47	10.55	N	<i>c + 2.3</i>	45 42.53	-1.56	40.97	30.42				
	1492	+ 36 30	N	<i>b - 0.7</i> <i>a - 8.9</i>	44 29.93	-1.47	28.46	N	<i>b + 5.2</i> <i>a + 12.7</i>	45 60.44	-1.56	58.88	30.42				
	1540	+ 43 39	N	<i>s</i> <i>Q - 1.45</i>	53 16.54	-1.44	15.10	N	<i>s</i> <i>Q - 1.67</i>	54 47.13	-1.59	45.54	30.44				
	1468	+ 18 31	S		39 8.38	-1.54	6.84	S		40 38.72	-1.48	37.24	30.40				
	1500	+ 14 3	S		45 36.13	-1.55	34.58	S		47 6.49	-1.46	5.03	30.45				
	1512	+ 16 12	S		47 53.00	-1.55	51.45	S		49 23.31	-1.47	21.84	30.39				
	1527	+ 23 46	S		50 24.26	-1.52	22.74	S		51 54.72	-1.49	53.23	30.49				
1883																	
Jan. 2	1408	+ 28 43	N	<i>I. P. E.</i>	4 26 45.10	+1.38	46.48	N	<i>I. P. E.</i>	4 28 14.93	+1.50	16.43	1 29.95				
	1414	+ 41 1	N	<i>c - 1.0</i>	28 1.85	+1.37	3.22	N	<i>c - 2.3</i>	29 31.68	+1.45	33.13	29.91				
	1424	+ 53 15	N	<i>b - 1.1</i> <i>a + 0.9</i>	30 9.30	+1.34	10.64	N	<i>b - 4.1</i> <i>a + 3.6</i>	31 39.21	+1.38	40.59	29.95				
	1444	+ 28 22	N	<i>s</i> <i>Q + 1.44</i>	33 26.77	+1.38	28.15	N	<i>s</i> <i>Q + 1.67</i>	34 56.56	+1.50	58.06	29.91				
	1390	+ 15 23	S		21 54.43	+1.39	55.82	S		23 24.18	+1.53	25.71	29.89				
	1392	+ 15 26	S		23 24.45	+1.39	25.84	S		24 54.27	+1.53	55.80	29.96				
	1402	+ 15 36	S		24 36.86	+1.39	38.25	S		26 6.62	+1.53	8.15	29.90				
Jan. 2	1475	+ 32 23	N	<i>I. P. E.</i>	4 41 14.40	-1.50	12.90	N	<i>I. P. E.</i>	4 42 44.68	-1.86	42.82	1 29.92				
	1490	+ 36 27	N	<i>c - 1.0</i>	43 59.74	-1.50	58.24	N	<i>c - 2.3</i>	45 30.05	-1.86	28.19	29.95				
	1492	+ 36 30	N	<i>b - 1.1</i> <i>a + 0.9</i>	44 17.60	-1.50	16.10	N	<i>b - 4.1</i> <i>a + 3.6</i>	45 47.91	-1.86	46.05	29.95				
	1540	+ 43 39	N	<i>s</i> <i>Q - 1.44</i>	53 4.13	-1.51	2.62	N	<i>s</i> <i>Q - 1.67</i>	54 34.56	-1.90	32.66	30.04				
	1500	+ 14 3	S		45 23.76	-1.48	22.28	S		46 54.08	-1.80	52.28	30.00				
	1512	+ 16 12	S		47 40.65	-1.49	39.16	S		49 10.87	-1.81	9.06	29.90				
	1527	+ 23 46	S		50 11.82	-1.49	10.33	S		51 42.24	-1.83	40.41	30.08				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation with all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + p$ .\*

JALPAIGURI (E) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Peral. Equations $S_N - S_E = -0.009$ $H_N - H_E = -0.008$	$\delta L_N + p$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		0			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 21	1947	+ 38 6	N	<i>I. P. W.</i>	5 58 26.33	+1.50	27.83	N	<i>I. P. W.</i>	5 59 56.48	+1.87	58.35	1 30.52				
	2001	+ 29 32	N	<i>d</i>	6 6 52.10	+1.50	53.60	N	<i>d</i>	6 8 22.23	+1.80	24.03	30.43				
	2014	+ 35 11	N	<i>a + 0.5</i> <i>b + 1.3</i> <i>a + 1.5</i>	8 40.40	+1.50	41.90	N	<i>a + 1.9</i> <i>b + 1.2</i> <i>a - 15.0</i>	10 10.54	+1.84	12.38	30.48				
	1938	+ 23 16	S	<i>s</i>	5 55 57.01	+1.50	58.51	S	<i>s</i>	5 57 27.43	+1.75	29.18	30.67				
	1958	+ 14 47	S	<i>Q + 1.46</i>	59 49.84	+1.51	51.35	S	<i>Q + 1.67</i>	6 1 20.28	+1.69	21.97	30.62				
	1971	+ 23 8	S		6 1 34.22	+1.50	35.72	N		3 4.56	+1.75	6.31	30.59				
	1975	+ 23 1	S		2 20.65	+1.50	22.15	N		3 50.96	+1.75	52.71	30.56				
	1987	+ 22 56	S		4 10.02	+1.50	11.52	S		5 40.36	+1.75	42.11	30.59				
Dec. 21	2170	+ 28 22	N	<i>I. P. W.</i>	6 31 9.96	-1.42	8.54	N	<i>I. P. W.</i>	6 32 40.73	-1.55	39.18	1 30.64				
	2047	+ 22 34	S	<i>d</i>	14 52.29	-1.42	50.87	S	<i>d</i>	16 23.07	-1.59	21.48	30.61				
	2059	+ 4 39	S	<i>a + 0.5</i> <i>b + 1.3</i> <i>a + 1.5</i>	16 33.26	-1.41	31.85	S	<i>a + 1.9</i> <i>b + 1.2</i> <i>a - 15.0</i>	18 4.21	-1.70	2.51	30.66				
	2080	+ 20 52	S	<i>s</i>	19 47.52	-1.42	46.10	S	<i>s</i>	21 18.33	-1.60	16.73	30.63				
Dec. 20	2001	+ 29 32	N	<i>I. P. E.</i>	6 6 41.95	+1.53	43.48	N	<i>I. P. E.</i>	6 8 11.78	+1.62	13.40	1 29.92				
	2014	+ 35 11	N	<i>d</i>	8 30.37	+1.53	31.90	N	<i>d</i>	10 0.19	+1.57	1.76	29.86				
	1938	+ 23 16	S	<i>a + 0.6</i> <i>b + 2.6</i> <i>a - 0.3</i>	5 55 46.96	+1.51	48.47	S	<i>a + 20.8</i> <i>b + 0.6</i> <i>a + 20.8</i>	5 57 16.73	+1.66	18.39	29.92				
	1958	+ 14 47	S	<i>s</i>	59 39.87	+1.51	41.38	S	<i>s</i>	6 1 9.55	+1.74	11.29	29.91				
	1975	+ 23 1	S	<i>Q + 1.44</i>	6 2 10.56	+1.51	12.07	N	<i>Q + 1.66</i>	3 40.33	+1.67	42.00	29.93				
	1987	+ 22 56	S		3 59.91	+1.51	61.42	S		5 29.69	+1.67	31.36	29.94				

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\delta L$ , all records having been transcribed by the same person.  
 $p$  is the retardation of an electric signal between the stations.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

JALPAIGURI (E) Lat. 26° 81', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Strahan, with Telescope No. 2					TRANSITS OBSERVED AT W By Heaviside, with Telescope No. 1					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations S <sub>N</sub> - S <sub>E</sub> = - 0 <sup>s</sup> .009 H <sub>N</sub> - H <sub>E</sub> = - 0 <sup>s</sup> .008	δL <sub>N</sub> + ρ
	B.A.C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Dec. 26	2097	+ 28 18	N	<i>I. P. E.</i>	6 21 48.45	-1.35	47.10	N	<i>I. P. E.</i>	6 23 18.75	-1.68	17.07	1 29.97				
	2183	+ 28 7	N	<i>d</i> c + 0.6	26 39.24	-1.35	37.89	N	<i>d</i> c + 0.2	28 9.64	-1.68	7.96	30.07				
	2170	+ 28 22	N	<i>b</i> + 2.6 <i>a</i> - 0.3	30 59.74	-1.35	58.39	N	<i>b</i> + 0.6 <i>a</i> + 20.8	32 30.14	-1.68	28.46	30.07				
	2059	+ 4 39	S	<i>s</i> Q -1.44	16 23.19	-1.38	21.81	S	<i>s</i> Q -1.66	17 53.37	-1.51	51.86	30.05				
	2080	+ 20 52	S		19 37.42	-1.37	36.05	S		21 7.72	-1.64	6.08	30.03				
	2111	+ 15 59	S		23 42.79	-1.37	41.42	S		25 13.01	-1.59	11.42	30.00				
	2163	+ 16 30	S		29 46.37	-1.37	45.00	S		31 16.57	-1.60	14.97	29.97				
Dec. 27	1947	+ 38 6	N	<i>I. P. W.</i>	5 58 13.84	+1.39	15.23	N	<i>I. P. W.</i>	5 59 44.02	+1.77	45.79	1 30.56				
	2001	+ 29 32	N	<i>d</i> c - 1.3	6 6 39.54	+1.38	40.92	N	<i>d</i> c + 3.9	6 8 9.61	+1.84	11.45	30.53				
	2014	+ 35 11	N	<i>b</i> - 1.2 <i>a</i> - 3.4	8 27.88	+1.38	29.26	N	<i>b</i> + 5.1 <i>a</i> + 19.9	9 58.12	+1.80	59.92	30.66				
	1988	+ 23 16	S	<i>s</i> Q +1.44	5 55 44.53	+1.38	45.91	S	<i>s</i> Q +1.67	5 57 14.71	+1.88	16.59	30.68				
	1958	+ 14 47	S		59 37.44	+1.36	38.80	S		6 1 7.42	+1.94	9.36	30.56				
	1971	+ 23 8	S		6 1 21.76	+1.38	23.14	N		2 51.85	+1.88	53.73	30.59				
	1975	+ 23 1	S		2 8.09	+1.37	9.46	N		3 38.24	+1.89	40.13	30.67				
	1987	+ 22 56	S		3 57.52	+1.37	58.89	S		5 27.56	+1.89	29.45	30.56				
Dec. 27	2097	+ 28 18	N	<i>I. P. W.</i>	6 21 46.05	-1.50	44.55	N	<i>I. P. W.</i>	6 23 16.56	-1.49	15.07	1 30.52				
	2170	+ 28 22	N	<i>d</i> c - 1.3	30 57.36	-1.50	55.86	N	<i>d</i> c + 3.9	32 27.90	-1.49	26.41	30.55				
	2178	+ 28 18	N	<i>b</i> - 1.2 <i>a</i> - 3.4	32 45.49	-1.50	43.99	N	<i>b</i> + 5.1 <i>a</i> + 19.9	34 15.95	-1.49	14.46	30.47				
	2059	+ 4 39	S	<i>s</i> Q -1.44	16 20.72	-1.53	19.19	S	<i>s</i> Q -1.67	17 51.13	-1.33	49.80	30.61				
	2080	+ 20 52	S		19 34.97	-1.51	33.46	S		21 5.51	-1.45	4.06	30.60				
	2111	+ 15 59	S		23 40.34	-1.51	38.83	S		25 10.84	-1.41	9.43	30.60				
	2163	+ 16 30	S		29 43.94	-1.51	42.43	S		31 14.42	-1.41	13.01	30.58				

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. $26^{\circ} 31'$ , Long. $85^{\circ} 55' 7''$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $88^{\circ} 53' 36''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $S_N - S_S = -0.009$ $H_N - H_S = -0.008$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1882					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Dec. 28	1947	+ 38 6	N	<i>I. P. E.</i>	5 58 11.84	+1.39	13.23	N	<i>I. P. E.</i>	5 59 41.48	+1.81	43.29	1 30.06			
	2001	+ 29 32	N	<i>c + 0.6</i> <i>d</i>	6 6 37.44	+1.47	38.91	N	<i>c + 1.6</i> <i>d</i>	6 8 7.15	+1.84	8.99	30.08			
	2014	+ 35 11	N	<i>b + 0.6</i> <i>a + 17.1</i>	8 25.89	+1.42	27.31	N	<i>b + 6.5</i> <i>a + 11.1</i>	9 55.65	+1.81	57.46	30.15			
	1938	+ 23 16	S	<i>s</i> <i>Q + 1.45</i>	5 55 42.46	+1.49	43.95	S	<i>s</i> <i>Q + 1.67</i>	5 57 12.19	+1.87	14.06	30.11			
	1958	+ 14 47	S		59 35.23	+1.55	36.78	S		6 1 4.91	+1.90	6.81	30.03			
	1971	+ 23 8	S		6 1 19.65	+1.49	21.14	N		2 49.40	+1.87	51.27	30.13			
	1975	+ 23 1	S		2 6.03	+1.50	7.53	N		3 35.78	+1.87	37.65	30.12			
	1987	+ 22 56	S		3 55.43	+1.50	56.93	S		5 25.13	+1.87	27.00	30.07			
Dec. 28	2007	+ 28 18	N	<i>I. P. E.</i>	6 21 43.95	-1.42	42.53	N	<i>I. P. E.</i>	6 23 14.14	-1.49	12.65	1 30.12			
	2133	+ 28 7	N	<i>c + 0.6</i> <i>d</i>	26 34.79	-1.42	33.37	N	<i>c + 1.6</i> <i>d</i>	28 5.00	-1.49	3.51	30.14			
	2170	+ 28 22	N	<i>b + 0.6</i> <i>a + 17.1</i>	30 55.31	-1.42	53.89	N	<i>b + 6.5</i> <i>a + 11.1</i>	32 25.49	-1.49	24.00	30.11			
	2178	+ 28 18	N	<i>s</i> <i>Q - 1.45</i>	32 43.38	-1.42	41.96	N	<i>s</i> <i>Q - 1.67</i>	34 13.54	-1.49	12.05	30.09			
	2059	+ 4 39	S		16 18.55	-1.29	17.26	S		17 48.76	-1.41	47.35	30.09			
	2080	+ 20 51	S		19 32.89	-1.39	31.50	S		21 3.11	-1.46	1.65	30.15			
	2111	+ 15 59	S		23 38.27	-1.36	36.91	S		25 8.39	-1.45	6.94	30.03			
	2163	+ 16 30	S		29 41.81	-1.36	40.45	S		31 11.91	-1.45	10.46	30.01			
Dec. 29	1947	+ 38 6	N	<i>I. P. W.</i>	5 58 9.26	+1.43	10.69	N	<i>I. P. W.</i>	5 59 39.56	+1.79	41.35	1 30.66			
	2001	+ 29 32	N	<i>c - 1.6</i> <i>d</i>	6 6 34.90	+1.40	36.30	N	<i>c + 2.3</i> <i>d</i>	6 8 4.98	+1.83	6.81	30.51			
	2014	+ 35 11	N	<i>b - 0.7</i> <i>a - 8.9</i>	8 23.30	+1.43	24.73	N	<i>b + 5.6</i> <i>a + 12.7</i>	9 53.49	+1.80	55.29	30.56			
	1938	+ 23 16	S	<i>s</i> <i>Q + 1.45</i>	5 55 39.96	+1.38	41.34	S	<i>s</i> <i>Q + 1.67</i>	5 57 10.15	+1.87	12.02	30.68			
	1958	+ 14 47	S		59 32.80	+1.35	34.15	S		6 1 2.80	+1.89	4.69	30.54			
	1971	+ 23 8	S		6 1 17.15	+1.38	18.53	N		2 47.26	+1.87	49.13	30.60			
	1975	+ 23 1	S		2 3.60	+1.38	4.98	N		3 33.64	+1.87	35.51	30.53			
	1987	+ 22 56	S		3 52.96	+1.38	54.34	S		5 23.04	+1.87	24.91	30.57			

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\#2$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

JALPAIGURI (E) Lat. 26° 81', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> ; AND CALCUTTA (W) Lat. 22° 83', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Strahan, with Telescope No. 2</i>					TRANSITS OBSERVED AT W <i>By Heaviside, with Telescope No. 1</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Peral. Equations $S_N - S_S = -0^{\circ}009$ $H_N - H_S = -0^{\circ}008$	$\delta L_N + \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1882 Dec. 29	2097	+ 28 18	N	<i>I. P. W.</i> $\begin{matrix} a = 1^{\circ}6 \\ b = 0^{\circ}7 \\ c = 8^{\circ}9 \end{matrix}$	6 21 41.47	-1.50	39.97	N	<i>I. P. W.</i> $\begin{matrix} a = 2^{\circ}3 \\ b = 5^{\circ}6 \\ c = 12^{\circ}7 \end{matrix}$	6 23 12.06	-1.50	10.56	1 30.59	$\begin{matrix} m \\ s \end{matrix}$ 1 30.570	+	0.003	$\begin{matrix} m \\ s \end{matrix}$ 1 30.574
	2133	+ 28 7	N	$\begin{matrix} d \\ c = 1^{\circ}6 \\ b = 0^{\circ}7 \\ a = 8^{\circ}9 \end{matrix}$	26 32.34	-1.50	30.84	N	$\begin{matrix} d \\ c = 2^{\circ}3 \\ b = 5^{\circ}6 \\ a = 12^{\circ}7 \end{matrix}$	28 2.92	-1.50	1.42	30.58				
	2170	+ 28 22	N	$\begin{matrix} d \\ c = 1^{\circ}6 \\ b = 0^{\circ}7 \\ a = 8^{\circ}9 \end{matrix}$	30 52.83	-1.50	51.33	N	$\begin{matrix} d \\ c = 2^{\circ}3 \\ b = 5^{\circ}6 \\ a = 12^{\circ}7 \end{matrix}$	32 23.40	-1.50	21.90	30.57				
	2178	+ 28 18	N	$\begin{matrix} d \\ c = 1^{\circ}6 \\ b = 0^{\circ}7 \\ a = 8^{\circ}9 \end{matrix}$	32 40.89	-1.50	39.39	N	$\begin{matrix} d \\ c = 2^{\circ}3 \\ b = 5^{\circ}6 \\ a = 12^{\circ}7 \end{matrix}$	34 11.44	-1.50	9.94	30.55				
	2059	+ 4 39	S	<i>Q</i> -1.45	16 16.19	-1.57	14.62	S	<i>Q</i> -1.67	17 46.62	-1.41	45.21	30.59				
	2080	+ 20 52	S		19 30.44	-1.53	28.91	S		20 60.95	-1.47	59.48	30.57				
	2111	+ 15 59	S		23 35.84	-1.55	34.29	S		25 6.31	-1.46	4.85	30.56				
	2163	+ 16 30	S		29 39.37	-1.55	37.82	S		31 9.83	-1.46	8.37	30.55				
1883 Jan. 2	1947	+ 38 6	N	<i>I. P. E.</i> $\begin{matrix} a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	5 57 59.99	+1.37	61.36	N	<i>I. P. E.</i> $\begin{matrix} a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	5 59 29.80	+1.46	31.26	1 29.90	$\begin{matrix} m \\ s \end{matrix}$ 1 29.980	+	0.002	$\begin{matrix} m \\ s \end{matrix}$ 1 29.982
	2001	+ 29 32	N	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	6 6 25.59	+1.38	26.97	N	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	6 7 55.49	+1.49	56.98	30.01				
	2014	+ 35 11	N	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	8 13.97	+1.38	15.35	N	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	9 43.93	+1.48	43.41	30.06				
	1958	+ 14 47	S	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	5 59 23.48	+1.39	24.87	S	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	0 53.28	+1.54	54.82	29.95				
	1971	+ 23 8	S	<i>Q</i> +1.44	6 1 7.87	+1.39	9.26	N	<i>Q</i> +1.67	2 37.73	+1.51	39.24	29.98				
	1976	+ 23 1	S		1 54.20	+1.39	55.59	N		3 24.06	+1.51	25.57	29.98				
	1987	+ 22 56	S		3 43.60	+1.39	44.99	S		5 13.46	+1.51	14.97	29.98				
Jan. 2	2097	+ 28 18	N	<i>I. P. E.</i> $\begin{matrix} a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	6 21 32.10	-1.50	30.60	N	<i>I. P. E.</i> $\begin{matrix} a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	6 23 2.53	-1.84	0.69	1 30.09	$\begin{matrix} m \\ s \end{matrix}$ 1 30.035	+	0.002	$\begin{matrix} m \\ s \end{matrix}$ 1 30.038
	2133	+ 28 7	N	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	26 22.95	-1.50	21.45	N	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	27 53.39	-1.84	51.55	30.10				
	2170	+ 28 22	N	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	30 43.50	-1.50	42.00	N	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	32 13.87	-1.84	12.03	30.03				
	2178	+ 28 18	N	$\begin{matrix} d \\ a = 1^{\circ}0 \\ b = 1^{\circ}1 \\ c = 0^{\circ}9 \end{matrix}$	32 31.56	-1.50	30.06	N	$\begin{matrix} d \\ a = 2^{\circ}3 \\ b = 4^{\circ}1 \\ c = 3^{\circ}6 \end{matrix}$	34 1.93	-1.84	0.09	30.03				
	2059	+ 4 39	S	<i>Q</i> -1.44	16 6.77	-1.47	5.30	S	<i>Q</i> -1.67	17 37.14	-1.79	35.35	30.05				
	2080	+ 20 52	S		19 21.12	-1.49	19.63	S		20 51.39	-1.83	49.56	29.93				
	2111	+ 15 59	S		23 26.47	-1.49	24.98	S		24 56.83	-1.81	55.02	30.04				
	2163	+ 16 30	S		29 29.99	-1.49	28.50	S		30 60.32	-1.81	58.51	30.01				

NOTE.—1<sup>d</sup> = 0<sup>h</sup> 02.25. Transcribing Equation with all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 12	2469	+ 28 9	N	<i>I. P. E.</i>	7 21 58.52	+ 1.76	60.28	N	<i>I. P. E.</i>	7 21 22.34	+ 1.42	23.76	- 0 36.52				
	2472	+ 28 10	N	<i>c - 1.7</i>	22 49.69	+ 1.76	51.45	N	<i>c - 0.6</i>	22 13.45	+ 1.42	14.87	36.58				
	2493	+ 27 9	N	<i>b + 1.4</i>	28 9.17	+ 1.76	10.93	N	<i>b - 0.4</i>	27 32.89	+ 1.42	34.31	36.62				
	2509	+ 34 51	N	<i>a - 11.5</i>	30 58.26	+ 1.79	60.05	N	<i>a + 6.6</i>	30 21.95	+ 1.39	23.34	36.71				
	2462	+ 8 31	S	<i>Q + 1.73</i>	20 14.62	+ 1.66	16.28	S	<i>Q + 1.45</i>	19 38.29	+ 1.48	39.77	36.51				
	2480	+ 2 10	S		25 27.58	+ 1.63	29.21	S		24 51.20	+ 1.49	52.69	36.52				
	2526	+ 5 30	S		33 20.40	+ 1.65	22.05	S		32 44.00	+ 1.49	45.49	36.56				
	2544	+ 22 41	S		35 50.48	+ 1.72	52.20	S		35 14.14	+ 1.44	15.58	36.62				
				Mean, T <sub>E</sub>	7 27 21												
Jan. 12	2650	+ 57 36	N	<i>I. P. E.</i>	7 52 34.55	- 1.47	33.08	N	<i>I. P. E.</i>	7 51 57.82	- 1.62	56.20	- 0 36.88				
	2663	+ 25 25	N	<i>c - 1.7</i>	54 10.17	- 1.72	8.45	N	<i>c - 0.6</i>	53 33.25	- 1.47	31.78	36.67				
	2688	+ 27 52	N	<i>b + 1.4</i>	57 56.65	- 1.70	54.95	N	<i>b - 0.4</i>	57 19.73	- 1.48	18.25	36.70				
	2605	+ 19 37	S	<i>a - 11.5</i>	44 38.32	- 1.75	36.57	S	<i>a + 6.6</i>	43 61.33	- 1.45	59.88	36.69				
	2632	+ 20 12	S	<i>Q - 1.73</i>	48 20.04	- 1.75	18.29	S	<i>Q - 1.45</i>	47 43.00	- 1.45	41.55	36.74				
	2639	+ 16 6	S		49 50.65	- 1.77	48.88	S		49 13.65	- 1.44	12.21	36.67				
	2676	+ 22 24	S		56 25.83	- 1.74	24.09	S		55 48.86	- 1.47	47.39	36.70				
				Mean, T <sub>E</sub>	7 51 59												
Jan. 13	2469	+ 28 9	N	<i>I. P. W.</i>	7 21 57.41	+ 1.65	59.06	N	<i>I. P. W.</i>	7 21 18.11	+ 1.37	19.48	- 0 39.58				
	2472	+ 28 10	N	<i>c - 0.5</i>	22 48.52	+ 1.65	50.17	N	<i>c - 2.5</i>	22 9.21	+ 1.37	10.58	39.59				
	2493	+ 27 9	N	<i>b - 2.9</i>	28 8.05	+ 1.65	9.70	N	<i>b - 2.8</i>	27 28.70	+ 1.37	30.07	39.63				
	2509	+ 34 51	N	<i>a - 5.8</i>	30 57.13	+ 1.66	58.79	N	<i>a - 1.2</i>	30 17.84	+ 1.35	19.19	39.60				
	2462	+ 8 31	S	<i>Q + 1.72</i>	20 13.45	+ 1.62	15.07	S	<i>Q + 1.50</i>	19 34.08	+ 1.37	35.45	39.62				
	2480	+ 2 10	S		25 26.32	+ 1.60	27.92	S		24 46.96	+ 1.37	48.33	39.59				
	2526	+ 5 30	S		33 19.24	+ 1.61	20.85	S		32 39.82	+ 1.37	41.19	39.66				
	2544	+ 22 41	S		35 49.35	+ 1.64	50.99	S		35 9.91	+ 1.37	11.28	39.71				
				Mean, T <sub>E</sub>	7 27 20												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation  $\pi$ 12, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	M <sub>N</sub>
			By Heavyside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 13	2617	+ 27 4	N	<i>I. P. W.</i>	7 45 49.01	-1.79	47.22	N	<i>I. P. W.</i>	7 45 9.08	-1.63	7.45	-0 39.77				
	2650	+ 57 36	N	<i>c - d</i>	52 33.52	-1.70	31.82	N	<i>c - d</i>	51 53.84	-1.68	52.16	39.66				
	2663	+ 25 25	N	<i>b - a</i>	54 9.06	-1.79	7.27	N	<i>b - a</i>	53 29.24	-1.63	27.61	39.66				
	2688	+ 27 52	N	<i>s</i>	57 55.50	-1.79	53.71	N	<i>s</i>	57 15.74	-1.63	14.11	39.60				
	2605	+ 19 37	S	<i>Q - 1.72</i>	44 37.24	-1.81	35.43	S	<i>Q - 1.50</i>	43 57.28	-1.63	55.65	39.78				
	2632	+ 20 12	S		48 18.91	-1.81	17.10	S		47 39.00	-1.63	37.37	39.73				
	2639	+ 16 6	S		49 49.49	-1.82	47.67	S		49 9.63	-1.63	8.00	39.67				
	2676	+ 22 24	S		56 24.73	-1.80	22.93	S		55 44.85	-1.63	43.22	39.71				
				Mean, T <sub>E</sub>	7 51 12												
Jan. 14	2460	+ 28 9	N	<i>I. P. E.</i>	7 21 55.91	+1.73	57.64	N	<i>I. P. E.</i>	7 21 14.16	+1.50	15.66	-0 41.98				
	2472	+ 28 10	N	<i>c - d</i>	22 47.03	+1.73	48.76	N	<i>c - d</i>	22 5.29	+1.50	6.79	41.97				
	2509	+ 34 51	N	<i>b + a</i>	30 55.62	+1.72	57.34	N	<i>b + a</i>	30 13.84	+1.51	15.35	41.99				
	2462	+ 8 31	S	<i>s</i>	20 11.86	+1.77	13.63	S	<i>s</i>	19 30.14	+1.48	31.62	42.01				
	2480	+ 2 10	S	<i>Q + 1.71</i>	25 24.77	+1.78	26.55	S	<i>Q + 1.52</i>	24 43.12	+1.47	44.59	41.96				
	2487	+ 3 33	S		26 27.16	+1.78	28.94	S		25 45.41	+1.47	46.88	42.06				
	2526	+ 5 30	S		33 17.55	+1.78	19.33	S		32 35.92	+1.47	37.39	41.94				
	2544	+ 22 41	S		35 47.73	+1.74	49.47	S		35 5.95	+1.50	7.45	42.02				
				Mean, T <sub>E</sub>	7 27 6												
Jan. 14	2617	+ 27 4	N	<i>I. P. E.</i>	7 45 47.36	-1.69	45.67	N	<i>I. P. E.</i>	7 45 5.13	-1.54	3.59	-0 42.08				
	2650	+ 57 36	N	<i>c - d</i>	52 32.13	-1.80	30.33	N	<i>c - d</i>	51 49.81	-1.50	48.31	42.02				
	2663	+ 25 25	N	<i>b + a</i>	54 7.52	-1.69	5.83	N	<i>b + a</i>	53 25.28	-1.54	23.74	42.09				
	2688	+ 27 52	N	<i>s</i>	57 54.01	-1.69	52.32	N	<i>s</i>	57 11.76	-1.54	10.22	42.10				
	2605	+ 19 37	S	<i>Q - 1.71</i>	44 35.45	-1.67	33.78	S	<i>Q - 1.52</i>	43 53.38	-1.55	51.83	41.95				
	2632	+ 20 12	S		48 17.27	-1.67	15.60	S		47 35.12	-1.55	33.57	42.03				
	2639	+ 16 6	S		49 47.86	-1.67	46.19	S		49 5.71	-1.55	4.16	42.03				
	2676	+ 22 24	S		56 23.16	-1.68	21.48	S		55 40.97	-1.55	39.42	42.06				
				Mean, T <sub>E</sub>	7 51 11												

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 15	2469	+ 28 9	N	<i>I. P. W.</i>	7 21 54 <sup>s</sup> .56	+ 1 <sup>s</sup> .47	56 <sup>s</sup> .03	N	<i>I. P. W.</i>	7 21 9 <sup>s</sup> .81	+ 1 <sup>s</sup> .51	11 <sup>s</sup> .32	- 0 44 <sup>s</sup> .71				
	2472	+ 28 10	N	<i>c - 3<sup>s</sup>.2</i> <i>d</i>	22 45 <sup>s</sup> .67	+ 1 <sup>s</sup> .47	47 <sup>s</sup> .14	N	<i>c - 0<sup>s</sup>.7</i> <i>d</i>	22 0 <sup>s</sup> .89	+ 1 <sup>s</sup> .51	2 <sup>s</sup> .40	44 <sup>s</sup> .74				
	2500	+ 34 51	N	<i>b - 2<sup>s</sup>.4</i> <i>a + 24<sup>s</sup>.6</i>	30 54 <sup>s</sup> .38	+ 1 <sup>s</sup> .37	55 <sup>s</sup> .75	N	<i>b - 0<sup>s</sup>.5</i> <i>a + 2<sup>s</sup>.1</i>	30 9 <sup>s</sup> .45	+ 1 <sup>s</sup> .50	10 <sup>s</sup> .95	44 <sup>s</sup> .80				
	2462	+ 8 31	S	<i>s</i> <i>Q + 1<sup>s</sup>.67</i>	20 10 <sup>s</sup> .36	+ 1 <sup>s</sup> .68	12 <sup>s</sup> .04	S	<i>s</i> <i>Q + 1<sup>s</sup>.54</i>	19 25 <sup>s</sup> .77	+ 1 <sup>s</sup> .52	27 <sup>s</sup> .29	44 <sup>s</sup> .75	<i>m s</i> - 0 44 <sup>s</sup> .769	+ 0 <sup>s</sup> .036	+ 0 <sup>s</sup> .013	
	2480	+ 2 10	S		25 23 <sup>s</sup> .28	+ 1 <sup>s</sup> .74	25 <sup>s</sup> .02	S		24 38 <sup>s</sup> .67	+ 1 <sup>s</sup> .53	40 <sup>s</sup> .20	44 <sup>s</sup> .82				
	2487	+ 3 33	S		26 25 <sup>s</sup> .62	+ 1 <sup>s</sup> .73	27 <sup>s</sup> .35	S		25 41 <sup>s</sup> .05	+ 1 <sup>s</sup> .53	42 <sup>s</sup> .58	44 <sup>s</sup> .77				
	2526	+ 5 30	S		33 16 <sup>s</sup> .05	+ 1 <sup>s</sup> .71	17 <sup>s</sup> .76	S		32 31 <sup>s</sup> .47	+ 1 <sup>s</sup> .53	33 <sup>s</sup> .00	44 <sup>s</sup> .76				
	2544	+ 22 41	S		35 46 <sup>s</sup> .42	+ 1 <sup>s</sup> .53	47 <sup>s</sup> .95	S		35 1 <sup>s</sup> .64	+ 1 <sup>s</sup> .51	3 <sup>s</sup> .15	44 <sup>s</sup> .80				
				Mean, T <sub>E</sub>	7 27 5												
Jan. 15	2617	+ 27 4	N	<i>I. P. W.</i>	7 45 45 <sup>s</sup> .98	- 1 <sup>s</sup> .86	44 <sup>s</sup> .12	N	<i>I. P. W.</i>	7 44 60 <sup>s</sup> .84	- 1 <sup>s</sup> .57	59 <sup>s</sup> .27	- 0 44 <sup>s</sup> .85				
	2650	+ 57 36	N	<i>c - 3<sup>s</sup>.2</i> <i>d</i>	52 31 <sup>s</sup> .02	- 2 <sup>s</sup> .47	28 <sup>s</sup> .55	N	<i>c - 0<sup>s</sup>.7</i> <i>d</i>	51 45 <sup>s</sup> .56	- 1 <sup>s</sup> .63	43 <sup>s</sup> .93	44 <sup>s</sup> .62				
	2663	+ 25 25	N	<i>b - 2<sup>s</sup>.4</i> <i>a + 24<sup>s</sup>.6</i>	54 6 <sup>s</sup> .07	- 1 <sup>s</sup> .84	4 <sup>s</sup> .23	N	<i>b - 0<sup>s</sup>.5</i> <i>a + 2<sup>s</sup>.1</i>	53 20 <sup>s</sup> .94	- 1 <sup>s</sup> .57	19 <sup>s</sup> .37	44 <sup>s</sup> .86				
	2688	+ 27 52	N	<i>s</i> <i>Q* - 1<sup>s</sup>.67</i>	57 52 <sup>s</sup> .55	- 1 <sup>s</sup> .87	50 <sup>s</sup> .68	N	<i>s</i> <i>Q - 1<sup>s</sup>.54</i>	57 7 <sup>s</sup> .48	- 1 <sup>s</sup> .57	5 <sup>s</sup> .91	44 <sup>s</sup> .77	<i>m s</i> - 0 44 <sup>s</sup> .814	+ 0 <sup>s</sup> .036	+ 0 <sup>s</sup> .010	
	2605	+ 19 37	S		44 30 <sup>s</sup> .77	+ 1 <sup>s</sup> .56	32 <sup>s</sup> .33	S		43 49 <sup>s</sup> .03	- 1 <sup>s</sup> .56	47 <sup>s</sup> .47	44 <sup>s</sup> .86				
	2632	+ 20 12	S		48 15 <sup>s</sup> .78	- 1 <sup>s</sup> .79	13 <sup>s</sup> .99	S		47 30 <sup>s</sup> .75	- 1 <sup>s</sup> .56	29 <sup>s</sup> .19	44 <sup>s</sup> .80				
	2639	+ 16 6	S		49 46 <sup>s</sup> .43	- 1 <sup>s</sup> .74	44 <sup>s</sup> .69	S		48 61 <sup>s</sup> .34	- 1 <sup>s</sup> .56	59 <sup>s</sup> .78	44 <sup>s</sup> .91				
	2676	+ 22 24	S		56 21 <sup>s</sup> .63	- 1 <sup>s</sup> .81	19 <sup>s</sup> .82	S		55 36 <sup>s</sup> .55	- 1 <sup>s</sup> .57	34 <sup>s</sup> .98	44 <sup>s</sup> .84				
				Mean, T <sub>E</sub>	7 51 9												
Jan. 17	2469	+ 28 9	N	<i>I. P. E.</i>	7 21 51 <sup>s</sup> .05	+ 1 <sup>s</sup> .62	52 <sup>s</sup> .67	N	<i>I. P. E.</i>	7 21 1 <sup>s</sup> .63	+ 1 <sup>s</sup> .57	3 <sup>s</sup> .20	- 0 49 <sup>s</sup> .47				
	2472	+ 28 10	N	<i>c - 1<sup>s</sup>.8</i> <i>d</i>	22 42 <sup>s</sup> .09	+ 1 <sup>s</sup> .62	43 <sup>s</sup> .71	N	<i>c + 0<sup>s</sup>.1</i> <i>d</i>	22 52 <sup>s</sup> .75	+ 1 <sup>s</sup> .57	54 <sup>s</sup> .32	49 <sup>s</sup> .39				
	2500	+ 34 51	N	<i>b - 0<sup>s</sup>.3</i> <i>a + 6<sup>s</sup>.2</i>	30 50 <sup>s</sup> .79	+ 1 <sup>s</sup> .60	52 <sup>s</sup> .39	N	<i>b + 1<sup>s</sup>.8</i> <i>a + 3<sup>s</sup>.5</i>	30 1 <sup>s</sup> .38	+ 1 <sup>s</sup> .56	2 <sup>s</sup> .94	49 <sup>s</sup> .45				
	2462	+ 8 31	S	<i>s</i> <i>Q + 1<sup>s</sup>.70</i>	20 7 <sup>s</sup> .02	+ 1 <sup>s</sup> .68	8 <sup>s</sup> .70	S	<i>s</i> <i>Q + 1<sup>s</sup>.52</i>	19 17 <sup>s</sup> .65	+ 1 <sup>s</sup> .58	19 <sup>s</sup> .23	49 <sup>s</sup> .47	<i>m s</i> - 0 49 <sup>s</sup> .491	+ 0 <sup>s</sup> .036	+ 0 <sup>s</sup> .013	
	2480	+ 2 10	S		25 19 <sup>s</sup> .93	+ 1 <sup>s</sup> .70	21 <sup>s</sup> .63	S		24 30 <sup>s</sup> .57	+ 1 <sup>s</sup> .59	32 <sup>s</sup> .16	49 <sup>s</sup> .47				
	2487	+ 3 33	S		26 22 <sup>s</sup> .33	+ 1 <sup>s</sup> .70	24 <sup>s</sup> .03	S		25 32 <sup>s</sup> .84	+ 1 <sup>s</sup> .59	34 <sup>s</sup> .43	49 <sup>s</sup> .60				
	2526	+ 5 30	S		33 12 <sup>s</sup> .78	+ 1 <sup>s</sup> .69	14 <sup>s</sup> .47	S		32 23 <sup>s</sup> .36	+ 1 <sup>s</sup> .59	24 <sup>s</sup> .95	49 <sup>s</sup> .52				
	2544	+ 22 41	S		35 42 <sup>s</sup> .93	+ 1 <sup>s</sup> .65	44 <sup>s</sup> .58	S		34 53 <sup>s</sup> .45	+ 1 <sup>s</sup> .57	55 <sup>s</sup> .02	49 <sup>s</sup> .56				
				Mean, T <sub>E</sub>	7 27 1												

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $Q$  is + for star No. 2605 only.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6° 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Peral. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 17	2617	+ 27 4	N	<i>I. P. E.</i>	7 45 42.37	-1.77	40.60	N	<i>I. P. E.</i>	7 44 52.67	-1.47	51.20	-0 49.40				
	2650	+ 57 36	N	<i>c - 1.8</i> <i>d</i>	52 27.13	-1.93	25.20	N	<i>c + 0.1</i> <i>d</i>	51 37.42	-1.53	35.89	49.31				
	2663	+ 25 25	N	<i>b - 0.3</i> <i>a + 6.2</i>	54 2.47	-1.76	0.71	N	<i>b + 1.8</i> <i>a + 3.5</i>	53 12.88	-1.47	11.41	49.30				
	2676	+ 22 24	S	<i>s</i> <i>Q - 1.70</i>	56 18.16	-1.75	16.41	S	<i>s</i> <i>Q - 1.52</i>	55 28.42	-1.47	26.95	49.46				
				Mean, T <sub>E</sub>	7 52 8												
Jan. 18	2469	+ 28 9	N	<i>I. P. W.</i>	7 21 49.30	+1.67	50.97	N	<i>I. P. W.</i>	7 20 57.23	+1.47	58.70	-0 52.27				
	2472	+ 28 10	N	<i>c - 0.7</i> <i>d</i>	22 40.42	+1.67	42.09	N	<i>c - 1.0</i> <i>d</i>	21 48.34	+1.47	49.81	52.28				
	2509	+ 34 51	N	<i>b + 0.5</i> <i>a + 0.8</i>	30 49.07	+1.67	50.74	N	<i>b - 0.6</i> <i>a + 3.7</i>	29 56.96	+1.46	58.42	52.32				
	2462	+ 8 31	S	<i>s</i> <i>Q + 1.68</i>	20 5.31	+1.67	6.98	S	<i>s</i> <i>Q + 1.52</i>	19 13.22	+1.52	14.74	52.24				
	2480	+ 2 10	S		25 18.21	+1.68	19.89	S		24 26.13	+1.52	27.65	52.24				
	2487	+ 3 33	S		26 20.55	+1.68	22.23	S		25 28.46	+1.52	29.98	52.25				
	2526	+ 5 30	S		33 11.11	+1.68	12.79	S		32 18.94	+1.52	20.46	52.33				
	2544	+ 22 41	S		35 41.16	+1.67	42.83	S		34 49.05	+1.50	50.55	52.28				
				Mean, T <sub>E</sub>	7 26 59												
Jan. 18	2617	+ 27 4	N	<i>I. P. W.</i>	7 45 40.73	-1.69	39.04	N	<i>I. P. W.</i>	7 44 48.25	-1.57	46.68	-0 52.36				
	2650	+ 57 36	N	<i>c - 0.7</i> <i>d</i>	52 25.62	-1.71	23.91	N	<i>c - 1.0</i> <i>d</i>	51 32.98	-1.65	31.33	52.58				
	2663	+ 25 25	N	<i>b + 0.5</i> <i>a + 0.8</i>	53 61.02	-1.69	59.33	N	<i>b - 0.6</i> <i>a + 3.7</i>	53 8.40	-1.56	6.84	52.49				
	2688	+ 27 52	N	<i>s</i> <i>Q - 1.68</i>	57 47.40	-1.69	45.71	N	<i>s</i> <i>Q - 1.52</i>	56 54.92	-1.57	53.35	52.36				
	2605	+ 19 37	S		44 28.99	-1.69	27.30	S		43 36.52	-1.54	34.98	52.32				
	2632	+ 20 12	S		48 10.76	-1.69	9.07	S		47 18.17	-1.54	16.63	52.44				
	2639	+ 16 6	S		49 41.33	-1.69	39.64	S		48 48.82	-1.53	47.29	52.35				
	2676	+ 22 24	S		56 16.53	-1.69	14.84	S		55 24.02	-1.54	22.48	52.36				
				Mean, T <sub>E</sub>	7 51 4												

NOTE.— $1^s = 0.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^{\text{h}} 7^{\text{m}} 31^{\text{s}}$ ; AND JALPAIGURI (W) Lat. $26^{\circ} 31'$ , Long. $5^{\text{h}} 55^{\text{m}} 7^{\text{s}}$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviride, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $H_N - H_S = -0^{\text{h}} 01^{\text{m}} 18^{\text{s}}$ $S_N - S_S = +0^{\text{h}} 00^{\text{m}} 02^{\text{s}}$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 12	2097	+ 28 18	N	<i>I. P. E.</i>	6 22 25.65	+1.76	27.41	N	<i>I. P. E.</i>	6 34 51.04	+1.41	52.45	12 25.04			
	2155	+ 39 30	N	<i>c - 1.7</i> <i>d</i>	29 59.88	+1.82	61.70	N	<i>c - 0.6</i> <i>d</i>	42 25.27	+1.38	26.65	24.95			
	2170	+ 28 22	N	<i>b + 1.4</i> <i>a - 11.5</i>	31 37.02	+1.76	38.78	N	<i>b - 0.4</i> <i>a + 6.6</i>	44 2.36	+1.41	3.77	24.99	<i>m s</i>		
	2080	+ 20 52	S	<i>Q + 1.73</i>	20 14.62	+1.71	16.33	S	<i>Q + 1.45</i>	32 40.00	+1.45	41.45	25.12			
Jan. 12	2223	+ 41 55	N	<i>I. P. E.</i>	6 41 59.81	-1.62	58.19	N	<i>I. P. E.</i>	6 54 24.78	-1.53	23.25	12 25.06			
	2254	+ 25 31	N	<i>c - 1.7</i> <i>d</i>	47 36.94	-1.72	35.22	N	<i>c - 0.6</i> <i>d</i>	7 0 1.69	-1.47	0.22	25.00			
	2275	+ 26 14	N	<i>b + 1.4</i> <i>a - 11.5</i>	51 4.79	-1.71	3.08	N	<i>b - 0.4</i> <i>a + 6.6</i>	3 29.45	-1.48	27.97	24.89			
	2278	+ 26 4	N	<i>Q - 1.73</i>	51 44.48	-1.71	42.77	N	<i>Q - 1.45</i>	4 9.26	-1.48	7.78	25.01			
	2233	+ 21 54	S		44 2.23	-1.74	0.49	S		6 56 27.01	-1.46	25.55	25.06			
	2265	+ 17 53	S		48 58.14	-1.76	56.38	S		7 1 22.89	-1.45	21.44	25.06			
	2285	+ 16 15	S		53 2.23	-1.77	0.46	S		5 26.95	-1.44	25.51	25.05			
Jan. 13	2097	+ 28 18	N	<i>I. P. W.</i>	6 22 24.54	+1.66	26.20	N	<i>I. P. W.</i>	6 34 49.43	+1.37	50.80	12 24.60			
	2133	+ 28 7	N	<i>c - 0.5</i> <i>d</i>	27 15.43	+1.65	17.08	N	<i>c - 2.5</i> <i>d</i>	39 40.27	+1.37	41.64	24.56			
	2155	+ 39 30	N	<i>b - 2.9</i> <i>a - 5.8</i>	29 58.90	+1.68	60.58	N	<i>b - 2.8</i> <i>a - 1.2</i>	41 23.72	+1.36	25.08	24.50			
	2170	+ 28 22	N	<i>Q + 1.72</i>	31 35.92	+1.66	37.58	N	<i>Q + 1.50</i>	44 0.81	+1.37	2.18	24.60			
	2047	+ 22 34	S		15 18.28	+1.64	19.92	S		27 43.04	+1.37	44.41	24.49			
	2059	+ 4 39	S		16 59.34	+1.61	60.95	S		29 24.01	+1.37	25.38	24.43			
	2080	+ 20 52	S		20 13.52	+1.64	15.16	S		32 38.36	+1.37	39.73	24.57			
	2111	+ 15 59	S		24 18.93	+1.62	20.55	S		36 43.71	+1.37	45.08	24.53			

NOTE.— $1^{\text{d}} = 0^{\text{h}} 02^{\text{m}} 25^{\text{s}}$ . Transcribing Equation  $\#12$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION  
OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 6 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Peral. Equations H <sub>N</sub> - H <sub>S</sub> = - 0.018 S <sub>N</sub> - S <sub>S</sub> = + 0.002	δL <sub>N</sub> - ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 13	2223	+ 41 55	N	<i>I. P. W.</i>	6 41 58.75	-1.76	56.99	N	<i>I. P. W.</i>	6 54 23.20	-1.65	21.55	12 24.56				
	2254	+ 25 31	N	<i>d</i>	47 35.88	-1.79	34.09	N	<i>d</i>	59 60.22	-1.63	58.59	24.50				
	2275	+ 26 14	N	<i>c - 0.5</i> <i>b - 2.9</i> <i>a - 5.8</i>	51 3.63	-1.79	1.84	N	<i>c - 2.5</i> <i>b - 2.8</i> <i>a - 1.2</i>	7 3 27.99	-1.63	26.36	24.52				
	2218	+ 8 10	S	<i>s</i> <i>Q - 1.72</i>	40 27.23	-1.82	25.41	S	<i>s</i> <i>Q - 1.50</i>	6 52 51.61	-1.63	49.98	24.57				
	2233	+ 21 54	S		43 61.15	-1.80	59.35	S		56 25.49	-1.63	23.86	24.51				
	2265	+ 17 53	S		48 57.02	-1.81	55.21	S		7 1 21.36	-1.63	19.73	24.52				
	2285	+ 16 15	S		52 61.17	-1.82	59.35	S		5 25.46	-1.63	23.83	24.48				
Jan. 14	2097	+ 28 18	N	<i>I. P. E.</i>	6 22 23.01	+1.72	24.73	N	<i>I. P. E.</i>	6 34 51.11	-1.54	49.57	12 24.84				
	2133	+ 28 7	N	<i>d</i>	27 13.89	+1.73	15.62	N	<i>d</i>	39 41.96	-1.54	40.42	24.80				
	2155	+ 39 30	N	<i>c - 0.5</i> <i>b + 1.7</i> <i>a + 5.6</i>	29 57.37	+1.70	59.07	N	<i>c - 0.9</i> <i>b + 0.1</i> <i>a - 3.0</i>	42 25.41	-1.53	23.88	24.81				
	2047	+ 22 34	S	<i>s</i> <i>Q + 1.71</i>	15 16.71	+1.74	18.45	S	<i>s</i> <i>Q - 1.52</i>	27 44.84	-1.55	43.29	24.84				
	2059	+ 4 39	S		16 57.52	+1.78	59.30	S		29 25.83	-1.57	24.26	24.96				
	2080	+ 20 52	S		20 11.89	+1.76	13.65	S		32 40.12	-1.55	38.57	24.92				
	2111	+ 15 59	S		24 17.27	+1.75	19.02	S		36 45.48	-1.55	43.93	24.91				
	2173	+ 19 46	S		32 31.14	+1.75	32.89	S		44 59.25	-1.55	57.70	24.81				
Jan. 14	2223	+ 41 55	N	<i>I. P. E.</i>	6 41 57.20	-1.74	55.46	N	<i>I. P. E.</i>	6 54 18.94	+1.51	20.45	12 24.99				
	2254	+ 25 31	N	<i>d</i>	47 34.19	-1.69	32.50	N	<i>d</i>	59 55.92	+1.50	57.42	24.92				
	2275	+ 26 14	N	<i>c - 0.5</i> <i>b + 1.7</i> <i>a + 5.6</i>	51 2.02	-1.69	0.33	N	<i>c - 0.9</i> <i>b + 0.1</i> <i>a - 3.0</i>	7 3 23.67	+1.50	25.17	24.84				
	2278	+ 26 4	N	<i>s</i> <i>Q - 1.71</i>	51 41.75	-1.69	40.06	N	<i>s</i> <i>Q + 1.52</i>	4 3.46	+1.50	4.96	24.90				
	2218	+ 8 10	S		40 25.62	-1.65	23.97	S		6 52 47.36	+1.48	48.84	24.87				
	2233	+ 21 54	S		43 59.46	-1.68	57.78	S		56 21.18	+1.49	22.67	24.89				
	2265	+ 17 53	S		48 55.43	-1.67	53.76	S		7 1 17.07	+1.49	18.56	24.80				
	2285	+ 16 15	S		52 59.52	-1.67	57.85	S		5 21.18	+1.49	22.67	24.82				

NOTE.—1<sup>st</sup> = 0.0225. Transcribing Equation wif, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^{\text{h}} 7^{\text{m}} 31^{\text{s}}$ : AND JALPAIGURI (W) Lat. $26^{\circ} 31'$ , Long. $5^{\text{h}} 55^{\text{m}} 7^{\text{s}}$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviride, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $H_N - H_S = -0^{\text{h}} 01^{\text{m}} 18^{\text{s}}$ $S_N - S_S = +0^{\text{h}} 00^{\text{m}} 02^{\text{s}}$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 15	2097	+ 28 18	N	<i>I. P. W.</i>	6 22 21.71	+1.46	23.17	N	<i>I. P. W.</i>	6 34 46.21	+1.51	47.72	12 24.55			
	2183	+ 28 7	N	$c - 3.2$	27 12.60	+1.47	14.07	N	$c - 0.7$	39 37.12	+1.51	38.63	24.56			
	2155	+ 39 30	N	$b - 2.4$ $a + 24.6$	29 56.14	+1.30	57.44	N	$b - 0.5$ $a + 2.1$	42 20.54	+1.50	22.04	24.60			
	2047	+ 22 34	S	$s$ $Q + 1.67$	15 15.35	+1.53	16.88	S	$s$ $Q + 1.54$	27 39.95	+1.51	41.46	24.58			
	2059	+ 4 39	S		16 56.20	+1.72	57.92	S		29 20.90	+1.53	22.43	24.51			
	2080	+ 20 52	S		20 10.69	+1.54	12.23	S		32 35.17	+1.52	36.69	24.46			
	2111	+ 15 59	S		24 15.94	+1.60	17.54	S		36 40.55	+1.52	42.07	24.53			
	2178	+ 19 46	S		32 29.70	+1.56	31.26	S		44 54.32	+1.52	55.84	24.58			
Jan. 15	2223	+ 41 55	N	<i>I. P. W.</i>	6 41 55.93	-2.09	53.84	N	<i>I. P. W.</i>	6 54 20.13	-1.59	18.54	12 24.70			
	2254	+ 25 31	N	$c - 3.2$	47 32.84	-1.84	31.00	N	$c - 0.7$	59 57.10	-1.57	55.53	24.53			
	2275	+ 26 14	N	$b - 2.4$ $a + 24.6$	50 60.62	-1.85	58.77	N	$b - 0.5$ $a + 2.1$	7 3 24.90	-1.57	23.33	24.56			
	2278	+ 26 4	N	$s$ $Q - 1.67$	51 40.34	-1.85	38.49	N	$s$ $Q - 1.54$	4 4.73	-1.57	3.16	24.67			
	2216	+ 8 10	S		40 24.10	-1.65	22.45	S		6 52 48.57	-1.55	47.02	24.57			
	2233	+ 21 54	S		43 58.14	-1.81	56.33	S		56 22.40	-1.57	20.83	24.50			
	2265	+ 17 53	S		48 53.85	-1.77	52.08	S		7 1 18.30	-1.56	16.74	24.66			
	2285	+ 16 15	S		52 58.12	-1.75	56.37	S		5 22.36	-1.56	20.80	24.43			
Jan. 17	2097	+ 28 18	N	<i>I. P. E.</i>	6 22 18.12	+1.62	19.74	N	<i>I. P. E.</i>	6 34 43.04	+1.57	44.61	12 24.87			
	2183	+ 28 7	N	$c - 1.8$	27 8.98	+1.62	10.60	N	$c + 0.1$	39 33.92	+1.57	35.49	24.89			
	2155	+ 39 30	N	$b - 0.3$ $a + 6.2$	29 52.44	+1.59	54.03	N	$b + 1.8$ $a + 3.5$	42 17.37	+1.55	18.92	24.89			
	2047	+ 22 34	S	$s$ $Q + 1.70$	15 11.88	+1.65	13.53	S	$s$ $Q + 1.52$	27 36.82	+1.57	38.39	24.86			
	2059	+ 4 39	S		16 52.71	+1.69	54.40	S		29 17.70	+1.59	19.29	24.89			
	2080	+ 20 52	S		20 7.16	+1.65	8.81	S		32 32.02	+1.57	33.59	24.78			
	2111	+ 15 59	S		24 12.50	+1.67	14.17	S		36 37.41	+1.58	38.99	24.82			
	2178	+ 19 46	S		32 26.26	+1.66	27.92	S		44 51.19	+1.57	52.76	24.84			

NOTE.— $1^{\text{d}} = 0^{\text{h}} 02^{\text{m}} 25^{\text{s}}$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 31': AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0.018 S <sub>N</sub> - S <sub>S</sub> = + 0.002	δL <sub>N</sub> - ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 17	2223	+ 41 55	N	<i>I. P. E.</i>	6 41 52.40	-1.82	50.58	N	<i>I. P. E.</i>	6 54 16.89	-1.50	15.39	12 24.81	<i>m s</i> 12 24.88	+ 0.016	+ 0.010	12 24.864
	2254	+ 25 31	N	<i>c</i> - 1.8 <i>d</i>	47 29.37	-1.76	27.61	N	<i>c</i> + 0.1 <i>d</i>	59 53.89	-1.47	52.42	24.81				
	2275	+ 26 14	N	<i>b</i> - 0.3 <i>a</i> + 6.2	50 57.16	-1.77	55.39	N	<i>b</i> + 1.8 <i>a</i> + 3.5	7 3 21.65	-1.47	20.18	24.79				
	2278	+ 26 4	N	<i>s</i> <i>Q</i> - 1.70	51 36.90	-1.77	35.13	N	<i>s</i> <i>Q</i> - 1.52	4 1.49	-1.47	0.02	24.89				
	2216	+ 8 10	S		40 20.72	-1.72	19.00	S		6 52 45.33	-1.45	43.88	24.88				
	2233	+ 21 54	S		43 54.58	-1.75	52.83	S		56 19.21	-1.47	17.74	24.91				
	2265	+ 17 53	S		48 50.53	-1.74	48.79	S		7 1 15.07	-1.47	13.60	24.81				
	2285	+ 16 15	S		52 54.64	-1.73	52.91	S		5 19.18	-1.47	17.71	24.80				
Jan. 18	2097	+ 28 18	N	<i>I. P. W.</i>	6 22 16.43	+1.67	18.10	N	<i>I. P. W.</i>	6 34 41.04	+1.47	42.51	12 24.41	<i>m s</i> 12 24.412	+ 0.016	+ 0.013	12 24.411
	2133	+ 28 7	N	<i>c</i> - 0.7 <i>d</i>	27 7.31	+1.67	8.98	N	<i>c</i> - 1.0 <i>d</i>	39 31.90	+1.47	33.37	24.39				
	2155	+ 39 30	N	<i>b</i> + 0.5 <i>a</i> + 0.8	29 50.76	+1.66	52.42	N	<i>b</i> - 0.6 <i>a</i> + 3.7	42 15.38	+1.45	16.83	24.41				
	2047	+ 22 34	S	<i>s</i> <i>Q</i> + 1.68	15 10.19	+1.67	11.86	S	<i>s</i> <i>Q</i> + 1.52	6 27 34.78	+1.50	36.28	24.42				
	2059	+ 4 39	S		16 51.09	+1.68	52.77	S		29 15.67	+1.52	17.19	24.42				
	2080	+ 20 52	S		20 5.40	+1.67	7.07	S		32 30.01	+1.50	31.51	24.44				
	2111	+ 15 59	S		24 10.80	+1.67	12.47	S		36 35.37	+1.51	36.88	24.41				
	2173	+ 19 46	S		31 24.60	+1.67	26.27	S		44 49.17	+1.50	50.67	24.40				
Jan. 18	2223	+ 41 55	N	<i>I. P. W.</i>	6 41 50.59	-1.70	48.89	N	<i>I. P. W.</i>	6 54 14.87	-1.60	13.27	12 24.38	<i>m s</i> 12 24.373	+ 0.016	+ 0.010	12 24.399
	2254	+ 25 31	N	<i>c</i> - 0.7 <i>d</i>	47 27.55	-1.69	25.86	N	<i>c</i> - 1.0 <i>d</i>	59 51.84	-1.56	50.28	24.42				
	2275	+ 26 14	N	<i>b</i> + 0.5 <i>a</i> + 0.8	50 55.40	-1.69	53.71	N	<i>b</i> - 0.6 <i>a</i> + 3.7	7 3 19.57	-1.57	18.00	24.29				
	2278	+ 26 4	N	<i>s</i> <i>Q</i> - 1.68	51 35.20	-1.69	33.51	N	<i>s</i> <i>Q</i> - 1.52	3 59.39	-1.57	57.82	24.31				
	2216	+ 8 10	S		40 19.01	-1.69	17.32	S		6 52 43.25	-1.52	41.73	24.41				
	2233	+ 21 54	S		43 52.85	-1.69	51.16	S		56 17.12	-1.54	15.58	24.42				
	2265	+ 17 53	S		48 48.74	-1.69	47.05	S		7 1 12.97	-1.54	11.43	24.38				
	2285	+ 16 15	S		52 52.85	-1.69	51.16	S		5 17.06	-1.53	15.53	24.37				

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	3 L <sub>N</sub> + ρ
	B.A.O. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 12	2860	+ 36 50	N	<i>I. P. E.</i>	8 12 15.82	+ 1.80	17.62	N	<i>I. P. E.</i>	8 24 41.42	+ 1.39	42.81	12 25.19				
	2871	+ 36 49	N	<i>c - 1.7</i> <i>d</i>	13 37.30	+ 1.80	39.10	N	<i>c - 0.6</i> <i>d</i>	26 2.85	+ 1.39	4.24	25.14				
	2005	+ 32 56	N	<i>b + 1.4</i> <i>a - 11.5</i>	18 38.83	+ 1.78	40.61	N	<i>b - 0.4</i> <i>a + 6.6</i>	31 4.36	+ 1.40	5.76	25.15				
	2065	+ 29 11	N	<i>s</i> <i>Q + 1.73</i>	26 1.31	+ 1.77	3.08	N	<i>s</i> <i>Q + 1.45</i>	38 26.83	+ 1.41	28.24	25.16				
	2888	+ 15 43	S		15 58.40	+ 1.69	60.09	S		28 23.82	+ 1.46	25.28	25.19				
	2922	+ 19 57	S		20 8.63	+ 1.71	10.34	S		32 34.08	+ 1.45	35.53	25.19				
	2925	+ 20 0	S		20 37.91	+ 1.71	39.62	S		33 3.36	+ 1.45	4.81	25.19				
	2937	+ 21 53	S		22 55.27	+ 1.72	56.99	S		35 20.66	+ 1.44	22.10	25.11				
													<i>m s</i> 12 25.165		+ 0.034		12 25.209
Jan. 12	3050	+ 42 13	N	<i>I. P. E.</i>	8 39 30.43	- 1.62	28.81	N	<i>I. P. E.</i>	8 51 55.47	- 1.53	53.94	12 25.13				
	3060	+ 28 22	N	<i>c - 1.7</i> <i>d</i>	41 18.05	- 1.70	16.35	N	<i>c - 0.6</i> <i>d</i>	53 42.96	- 1.49	41.47	25.12				
	3088	+ 28 22	N	<i>b + 1.4</i> <i>a - 11.5</i>	43 39.17	- 1.70	37.47	N	<i>b - 0.4</i> <i>a + 6.6</i>	56 4.06	- 1.49	2.57	25.10				
	3097	+ 38 55	N	<i>s</i> <i>Q - 1.73</i>	45 32.91	- 1.65	31.26	N	<i>s</i> <i>Q - 1.45</i>	57 57.88	- 1.52	56.36	25.10				
	3111	+ 11 8	S		47 52.17	- 1.79	50.38	S		9 0 17.06	- 1.43	15.63	25.25				
	3123	+ 22 28	S		50 5.09	- 1.74	3.35	S		2 30.01	- 1.46	28.55	25.20				
	3129	+ 18 31	S		51 50.16	- 1.76	48.40	S		4 15.02	- 1.45	13.57	25.17				
													<i>m s</i> 12 25.153		+ 0.034		12 25.196
Jan. 13	2860	+ 36 50	N	<i>I. P. W.</i>	8 12 12.20	+ 1.67	13.87	N	<i>I. P. W.</i>	8 24 37.19	+ 1.36	38.55	12 24.68				
	2871	+ 36 49	N	<i>c - 0.5</i> <i>d</i>	13 33.68	+ 1.67	35.35	N	<i>c - 2.5</i> <i>d</i>	25 58.69	+ 1.36	60.05	24.70				
	2905	+ 32 56	N	<i>b - 2.9</i> <i>a - 5.8</i>	18 35.23	+ 1.66	36.89	N	<i>b - 2.8</i> <i>a - 1.2</i>	31 0.14	+ 1.36	1.50	24.61				
	2965	+ 29 11	N	<i>s</i> <i>Q + 1.72</i>	25 57.69	+ 1.66	59.35	N	<i>s</i> <i>Q + 1.50</i>	38 22.70	+ 1.37	24.07	24.72				
	2888	+ 15 43	S		15 54.64	+ 1.62	56.26	S		28 19.63	+ 1.37	21.00	24.74				
	2922	+ 19 57	S		20 5.01	+ 1.63	6.64	S		32 29.92	+ 1.37	31.29	24.65				
	2925	+ 20 0	S		20 34.31	+ 1.63	35.94	S		32 59.20	+ 1.37	60.57	24.63				
	2937	+ 21 53	S		22 51.57	+ 1.64	53.21	S		35 16.45	+ 1.37	17.82	24.61				
													<i>m s</i> 12 24.667		+ 0.035		12 24.712

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ : AND JALPAIGURI (W) Lat. $26^{\circ} 31'$ , Long. $5^h 55^m 7^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = -0^s.018$ $S_N - S_S = +0^s.003$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 13	3059	+ 42 13	N	<i>I. P. W.</i>	8 39 26.69	-1.76	24.93	N	<i>I. P. W.</i>	8 51 51.47	-1.65	49.82	12 24.89			
	3069	+ 28 22	N	<i>c - d</i>	41 14.29	-1.78	12.51	N	<i>c - d</i>	53 39.01	-1.63	37.38	24.87			
	3088	+ 28 22	N	<i>b - 2.9</i> <i>a - 5.8</i>	43 35.38	-1.78	33.60	N	<i>b - 2.8</i> <i>a - 1.2</i>	55 60.16	-1.63	58.53	24.93			
	3097	+ 38 55	N	<i>s</i> <i>Q - 1.72</i>	45 29.13	-1.76	27.37	N	<i>s</i> <i>Q - 1.50</i>	57 53.92	-1.64	52.28	24.91			
	3111	+ 11 8	S		47 48.43	-1.82	46.61	S		9 0 13.01	-1.63	11.38	24.77	<i>m s</i> 12 24.833	+	0.009
	3123	+ 22 28	S		49 61.38	-1.80	59.58	S		2 25.99	-1.63	24.36	24.78			
	3129	+ 18 31	S		51 46.52	-1.81	44.71	S		4 11.02	-1.63	9.39	24.68			
Jan. 14	2860	+ 36 50	N	<i>I. P. E.</i>	8 12 8.04	+1.71	9.75	N	<i>I. P. E.</i>	8 24 33.20	+1.51	34.71	12 24.96			
	2871	+ 36 49	N	<i>c - d</i>	13 29.45	+1.71	31.16	N	<i>c - d</i>	25 54.65	+1.51	56.16	25.00			
	2905	+ 32 56	N	<i>b + 1.7</i> <i>a + 5.6</i>	18 30.98	+1.71	32.69	N	<i>b + 0.1</i> <i>a - 3.0</i>	30 56.19	+1.51	57.70	25.01			
	2965	+ 29 11	N	<i>s</i> <i>Q + 1.71</i>	25 53.47	+1.72	55.19	N	<i>s</i> <i>Q + 1.52</i>	38 18.66	+1.50	20.16	24.97			
	2888	+ 15 43	S		15 50.35	+1.75	52.10	S		28 15.63	+1.49	17.12	25.02	<i>m s</i> 12 24.988	+	0.010
	2922	+ 19 57	S		20 0.66	+1.75	2.41	S		32 25.95	+1.49	27.44	25.03			
	2925	+ 20 0	S		20 29.98	+1.75	31.73	S		32 55.20	+1.49	56.69	24.96			
	2937	+ 21 53	S		22 47.26	+1.74	49.00	S		35 12.46	+1.49	13.95	24.95			
Jan. 14	3059	+ 42 13	N	<i>I. P. E.</i>	8 39 22.57	-1.74	20.83	N	<i>I. P. E.</i>	8 51 47.50	-1.53	45.97	12 25.14			
	3069	+ 28 22	N	<i>c - d</i>	41 10.07	-1.70	8.37	N	<i>c - d</i>	53 35.00	-1.54	33.46	25.09			
	3088	+ 28 22	N	<i>b + 1.7</i> <i>a + 5.6</i>	43 31.22	-1.70	29.52	N	<i>b + 0.1</i> <i>a - 3.0</i>	55 56.18	-1.54	54.64	25.12			
	3097	+ 38 55	N	<i>s</i> <i>Q - 1.71</i>	45 24.98	-1.72	23.26	N	<i>s</i> <i>Q - 1.52</i>	57 49.94	-1.53	48.41	25.15			
	3111	+ 11 8	S		47 44.11	-1.65	42.46	S		9 0 9.07	-1.56	7.51	25.05	<i>m s</i> 12 25.087	+	0.010
	3122	+ 12 3	S		49 44.32	-1.66	42.66	S		2 9.31	-1.56	7.75	25.09			
	3129	+ 18 31	S		51 42.12	-1.67	40.45	S		4 7.05	-1.55	5.50	25.05			
	3138	+ 21 46	S		53 15.86	-1.68	14.18	S		5 40.74	-1.55	39.19	25.01			

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation 67, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 6 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .002	δ L <sub>N</sub> + ρ
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 15	2860	+ 36 50	N	<i>I. P. W.</i>	8 12 4.15	+ 1.35	5.50	N	<i>I. P. W.</i>	8 24 28.95	+ 1.50	30.45	12 24.95				
	2871	+ 36 49	N	<i>c - 3.2</i>	13 25.64	+ 1.35	26.99	N	<i>c - 0.7</i>	25 50.45	+ 1.50	51.95	24.96				
	2905	+ 32 56	N	<i>b - 2.4</i>	18 27.15	+ 1.38	28.53	N	<i>b - 0.5</i>	30 51.93	+ 1.50	53.43	24.90				
	2905	+ 29 11	N	<i>a + 24.6</i>	25 49.53	+ 1.45	50.98	N	<i>a + 2.1</i>	38 14.38	+ 1.51	15.89	24.91				
	2888	+ 15 43	S	<i>Q + 1.67</i>	15 46.46	+ 1.61	48.07	S	<i>Q + 1.54</i>	28 11.37	+ 1.52	12.89	24.82				
	2922	+ 19 57	S		19 56.71	+ 1.56	58.27	S		32 21.64	+ 1.52	23.16	24.89				
	2925	+ 20 0	S		20 26.04	+ 1.56	27.60	S		32 50.94	+ 1.52	52.46	24.86				
	2937	+ 21 53	S		22 43.37	+ 1.53	44.90	S		35 8.23	+ 1.51	9.74	24.84				
Jan. 15	3059	+ 42 13	N	<i>I. P. W.</i>	8 39 18.84	- 2.11	16.73	N	<i>I. P. W.</i>	8 51 43.24	- 1.59	41.65	12 24.92				
	3069	+ 28 22	N	<i>c - 3.2</i>	41 6.22	- 1.88	4.34	N	<i>c - 0.7</i>	53 30.77	- 1.57	29.20	24.86				
	3088	+ 28 22	N	<i>b - 2.4</i>	43 27.32	- 1.88	25.44	N	<i>b - 0.5</i>	55 51.94	- 1.57	50.37	24.93				
	3097	+ 38 55	N	<i>a + 24.6</i>	45 21.26	- 2.03	19.23	N	<i>a + 2.1</i>	57 45.72	- 1.58	44.14	24.91				
	3111	+ 11 8	S	<i>Q - 1.67</i>	47 40.10	- 1.68	38.42	S	<i>Q - 1.54</i>	9 0 4.70	- 1.56	3.14	24.72				
	3122	+ 12 3	S		49 40.46	- 1.69	38.77	S		2 5.03	- 1.56	3.47	24.70				
	3129	+ 18 31	S		51 38.27	- 1.77	36.50	S		4 2.80	- 1.56	1.24	24.74				
	3138	+ 21 46	S		53 12.00	- 1.81	10.19	S		5 36.48	- 1.57	34.91	24.72				
Jan. 17	2871	+ 36 49	N	<i>I. P. E.</i>	8 13 17.13	+ 1.60	18.73	N	<i>I. P. E.</i>	8 25 42.23	+ 1.55	43.78	12 25.05				
	2905	+ 32 56	N	<i>c - 1.8</i>	18 18.58	+ 1.61	20.19	N	<i>c + 0.1</i>	30 43.81	+ 1.56	45.37	25.18				
	2905	+ 29 11	N	<i>b - 0.3</i>	25 41.08	+ 1.62	42.70	N	<i>b + 1.8</i>	38 6.25	+ 1.57	7.82	25.12				
	2888	+ 15 43	S	<i>a + 6.2</i>	15 38.07	+ 1.67	39.74	S	<i>a + 3.5</i>	28 3.24	+ 1.58	4.82	25.08				
	2922	+ 19 57	S	<i>Q + 1.70</i>	19 48.39	+ 1.66	50.05	S	<i>Q + 1.52</i>	32 13.52	+ 1.57	15.09	25.04				
	2925	+ 20 0	S		20 17.65	+ 1.66	19.31	S		32 42.79	+ 1.57	44.36	25.05				
	2937	+ 21 53	S		22 34.93	+ 1.65	36.58	S		35 0.04	+ 1.57	1.61	25.03				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND JALPAIGURI (W) Lat. 26° 31', Long. 5 <sup>h</sup> 55 <sup>m</sup> 7 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = - 0.018 S <sub>N</sub> - S <sub>S</sub> = + 0.002	δ L <sub>N</sub> + ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 17	3059	+ 42 13	N	<i>I. P. E.</i>	8 39 10.28	-1.83	8.45	N	<i>I. P. E.</i>	8 51 35.16	-1.50	33.66	12 25.21				
	3069	+ 28 22	N	<i>c - d</i>	40 57.77	-1.78	55.99	N	<i>c + d</i>	53 22.57	-1.47	21.10	25.11				
	3088	+ 28 22	N	<i>b - a</i>	43 18.85	-1.78	17.07	N	<i>b + a</i>	55 43.69	-1.47	42.22	25.15				
	3097	+ 38 55	N	<i>s</i>	45 12.68	-1.81	10.87	N	<i>s</i>	57 37.60	-1.49	36.11	25.24				
	3111	+ 11 8	S	<i>Q - 1.70</i>	47 31.80	-1.72	30.08	S	<i>Q - 1.52</i>	59 56.62	-1.46	55.16	25.08	<i>m s</i>			
	3122	+ 12 3	S		49 32.06	-1.72	30.34	S		9 1 56.87	-1.46	55.41	25.07				
	3138	+ 21 46	S		53 3.62	-1.75	1.87	S		5 28.34	-1.47	26.87	25.00				
Jan. 18	2860	+ 36 50	N	<i>I. P. W.</i>	8 11 51.58	+1.66	53.24	N	<i>I. P. W.</i>	8 24 16.46	+1.45	17.91	12 24.67				
	2871	+ 36 49	N	<i>c - d</i>	13 13.05	+1.66	14.71	N	<i>c + d</i>	25 37.91	+1.45	39.36	24.65				
	2905	+ 32 56	N	<i>b - a</i>	18 14.62	+1.67	16.29	N	<i>b + a</i>	30 39.42	+1.46	40.88	24.59				
	2965	+ 29 11	N	<i>s</i>	25 37.00	+1.67	38.67	N	<i>s</i>	38 1.86	+1.47	3.33	24.66				
	2888	+ 15 43	S	<i>Q + 1.68</i>	15 34.03	+1.67	35.70	S	<i>Q + 1.52</i>	27 58.76	+1.51	60.27	24.57	<i>m s</i>			
	2922	+ 19 57	S		19 44.33	+1.67	46.00	S		32 9.11	+1.50	10.61	24.61				
	2925	+ 20 0	S		20 13.59	+1.67	15.26	S		32 38.38	+1.50	39.88	24.62				
	2937	+ 21 53	S		22 30.85	+1.67	32.52	S		34 55.71	+1.50	57.21	24.69				
Jan. 18	3059	+ 42 13	N	<i>I. P. W.</i>	8 39 6.14	-1.70	4.44	N	<i>I. P. W.</i>	8 51 30.75	-1.60	29.15	12 24.71				
	3069	+ 28 22	N	<i>c - d</i>	40 53.71	-1.69	52.02	N	<i>c + d</i>	53 18.26	-1.57	16.69	24.67				
	3088	+ 28 22	N	<i>b - a</i>	43 14.84	-1.69	13.15	N	<i>b + a</i>	55 39.40	-1.57	37.83	24.68				
	3097	+ 38 55	N	<i>s</i>	45 8.50	-1.70	6.80	N	<i>s</i>	57 33.21	-1.59	31.62	24.82				
	3111	+ 11 8	S	<i>Q - 1.68</i>	47 27.77	-1.69	26.08	S	<i>Q - 1.52</i>	59 52.23	-1.53	50.70	24.62	<i>m s</i>			
	3122	+ 12 3	S		49 27.97	-1.69	26.28	S		9 1 52.45	-1.53	50.92	24.64				
	3129	+ 18 31	S		51 25.73	-1.69	24.04	S		3 50.27	-1.54	48.73	24.69				
	3188	+ 21 46	S		52 59.44	-1.69	57.75	S		5 23.98	-1.54	22.44	24.69				

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *with*, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = +0.018$ $S_N - S_S = +0.028$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 23	2672	+ 28 8	N	<i>I. P. W.</i>	7 56 28.18	+1.59	29.77	N	<i>I. P. W.</i>	7 56 23.59	+1.45	25.04	-0 4.73			
	2700	+ 22 58	N	<i>c - d</i>	59 30.67	+1.61	32.28	N	<i>c - d</i>	59 26.02	+1.44	27.46	4.82			
	2700	+ 22 58	S	<i>b - 2.2</i> <i>a + 4.4</i>	59 30.57	+1.61	32.18	S	<i>b - 3.7</i> <i>a - 2.1</i>	59 25.98	+1.44	27.42	4.76			
	2714	+ 21 55	S	<i>s</i> <i>Q + 1.68</i>	8 1 0.90	+1.61	2.51	S	<i>s</i> <i>Q + 1.56</i>	8 0 56.31	+1.44	57.75	4.76			+
	2744	+ 18 0	S		5 38.16	+1.62	39.78	S		5 33.57	+1.44	35.01	4.77			-
				Mean, $T_E$	8 0 26											
Jan. 23	2799	+ 18 43	S	<i>I. P. W.</i>	8 16 51.34	-1.74	49.60	S	<i>I. P. W.</i>	8 16 46.54	-1.68	44.86	-0 4.74			
	2810	+ 17 34	S	<i>c - d</i> <i>b - 2.2</i> <i>a + 4.4</i> <i>s</i> <i>Q - 1.68</i>	18 17.42	-1.74	15.68	S	<i>c - d</i> <i>b - 3.7</i> <i>a - 2.1</i> <i>s</i> <i>Q - 1.56</i>	18 12.58	-1.68	10.90	4.78			+
				Mean, $T_E$	8 17 34											-
Jan. 24	2672	+ 28 8	N	<i>I. P. E.</i>	7 56 25.96	+1.72	27.68	N	<i>I. P. E.</i>	7 56 24.91	+1.67	26.58	-0 1.10			
	2700	+ 22 58	N	<i>c - d</i>	59 28.47	+1.73	30.20	N	<i>c - d</i>	59 27.32	+1.73	29.05	1.15			
	2727	+ 26 11	N	<i>b + 1.4</i> <i>a + 8.2</i>	8 3 14.89	+1.73	16.62	N	<i>b + 5.3</i> <i>a + 29.7</i>	8 3 13.77	+1.69	15.46	1.16			
	2700	+ 22 58	S	<i>s</i> <i>Q + 1.70</i>	7 59 28.49	+1.73	30.22	S	<i>s</i> <i>Q + 1.57</i>	7 59 27.32	+1.73	29.05	1.17			+
	2714	+ 21 55	S		8 0 58.66	+1.73	60.39	S		8 0 57.67	+1.75	59.42	0.97			-
	2737	+ 14 59	S		4 30.31	+1.76	32.07	S		4 29.14	+1.81	30.95	1.12			
	2744	+ 18 0	S		5 36.00	+1.74	37.74	S		5 34.82	+1.80	36.62	1.12			
	2759	+ 18 1	S		7 35.16	+1.74	36.90	S		7 34.04	+1.80	35.84	1.06			
				Mean, $T_E$	8 2 10											

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *all*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .028	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 24	2788	+ 21 7	N	<i>I. P. E.</i>	8 13 40.82	-1.67	39.15	N	<i>I. P. E.</i>	8 13 39.50	-1.38	38.12	-0 1.03				
	2833	+ 24 32	N	<i>c - d</i>	21 49.90	-1.68	48.22	N	<i>c + d</i>	21 48.56	-1.43	47.13	1.09				
	2840	+ 24 44	N	<i>b + 1.4</i> <i>a + 8.2</i>	22 52.78	-1.68	51.10	N	<i>b + 5.3</i> <i>a + 29.7</i>	22 51.47	-1.43	50.04	1.06				
	2860	+ 36 50	N	<i>Q - 1.70</i>	25 60.91	-1.72	59.19	N	<i>Q - 1.57</i>	25 59.75	-1.60	58.15	1.04				
	2788	+ 21 7	S		13 40.81	-1.67	39.14	S		13 39.37	-1.38	37.99	1.15				
	2799	+ 18 43	S		16 49.12	-1.66	47.46	S		16 47.75	-1.35	46.40	1.06				
	2810	+ 17 34	S		18 15.20	-1.65	13.55	S		18 13.84	-1.34	12.50	1.05				
	2816	+ 17 26	S		19 21.79	-1.65	20.14	S		19 20.39	-1.34	19.05	1.09				
				Mean, T <sub>R</sub>	8 19 4												
Jan. 25	2672	+ 28 8	N	<i>I. P. W.</i>	7 56 23.84	+1.70	25.54	N	<i>I. P. W.</i>	7 56 26.41	+1.53	27.94	+0 2.40				
	2700	+ 22 58	N	<i>c - d</i>	59 26.30	+1.73	28.03	N	<i>c - 0.8</i>	59 28.72	+1.59	30.31	2.28				
	2718	+ 27 49	N	<i>b + 0.8</i> <i>a + 10.7</i>	8 144.09	+1.71	45.80	N	<i>b + 2.3</i> <i>a + 27.3</i>	8 146.63	+1.53	48.16	2.36				
	2727	+ 26 11	N	<i>Q + 1.71</i>	3 12.71	+1.71	14.42	N	<i>Q + 1.56</i>	3 15.13	+1.56	16.69	2.27				
	2700	+ 22 58	S		7 59 26.22	+1.73	27.95	S		7 59 28.69	+1.59	30.28	2.33				
	2714	+ 21 55	S		8 0 56.53	+1.73	58.26	S		8 0 58.91	+1.61	60.52	2.26				
	2737	+ 14 59	S		4 28.20	+1.76	29.96	S		4 30.60	+1.67	32.27	2.31				
	2744	+ 18 0	S		5 33.82	+1.75	35.57	S		5 36.17	+1.64	37.81	2.24				
	2769	+ 18 1	S		7 33.01	+1.75	34.76	S		7 35.51	+1.64	37.15	2.39				
				Mean, T <sub>R</sub>	8 2 5												
Jan. 25	2788	+ 21 7	N	<i>I. P. W.</i>	8 13 38.73	-1.68	37.05	N	<i>I. P. W.</i>	8 13 40.94	-1.50	39.44	+0 2.39				
	2840	+ 24 44	N	<i>c - d</i>	22 50.71	-1.70	49.01	N	<i>c - 0.8</i>	22 52.91	-1.55	51.36	2.35				
	2850	+ 24 28	N	<i>b + 0.8</i> <i>a + 10.7</i>	24 42.63	-1.70	40.93	N	<i>b + 2.3</i> <i>a + 27.3</i>	24 44.96	-1.54	43.42	2.49				
	2860	+ 36 50	N	<i>Q - 1.71</i>	25 58.70	-1.77	56.93	N	<i>Q - 1.56</i>	25 61.09	-1.71	59.38	2.45				
	2788	+ 21 7	S		13 38.67	-1.68	36.99	S		13 40.82	-1.50	39.32	2.33				
	2799	+ 18 43	S		16 47.06	-1.67	45.39	S		16 49.16	-1.49	47.67	2.28				
	2810	+ 17 34	S		18 13.04	-1.67	11.37	S		18 15.21	-1.47	13.74	2.37				
	2816	+ 17 26	S		19 19.60	-1.67	17.93	S		19 21.74	-1.47	20.27	2.34				
				Mean, T <sub>R</sub>	8 19 24												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = +0.018$ $S_N - S_S = +0.028$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 26	2672	+ 28 8	N	<i>I. P. E.</i>	7 56 21.35	+ 1.67	23.02	N	<i>I. P. E.</i>	7 56 27.54	+ 1.69	29.23	+ 0 6.21			
	2700	+ 22 58	N	<i>d</i>	59 23.89	+ 1.65	25.54	N	<i>d</i>	59 29.93	+ 1.77	31.70	6.16			
	2727	+ 26 11	N	<i>c - 1.8</i> <i>b - 0.9</i> <i>a - 10.3</i>	8 3 10.20	+ 1.66	11.86	N	<i>c - 1.0</i> <i>b + 10.3</i> <i>a + 36.6</i>	8 3 16.40	+ 1.72	18.12	6.26			
	2700	+ 22 58	S	<i>s</i>	7 59 23.90	+ 1.65	25.55	S	<i>s</i>	7 59 29.87	+ 1.77	31.64	6.09			
	2714	+ 21 55	S	<i>Q + 1.71</i>	8 0 54.14	+ 1.65	55.79	S	<i>Q + 1.55</i>	8 1 0.19	+ 1.79	1.98	6.19	<i>m s</i> + 0 6.199	0.010	0.006
	2737	+ 14 59	S		4 25.79	+ 1.62	27.41	S		4 31.79	+ 1.88	33.67	6.26			
	2744	+ 18 0	S		5 31.44	+ 1.63	33.07	S		5 37.40	+ 1.84	39.24	6.17			
	2759	+ 18 1	S		7 30.63	+ 1.63	32.26	S		7 36.67	+ 1.84	38.51	6.25			
				Mean, $T_E$	8 2 5											+ 0 6.195
Jan. 26	2788	+ 21 7	N	<i>I. P. E.</i>	8 13 36.29	- 1.78	34.51	N	<i>I. P. E.</i>	8 13 42.06	- 1.30	40.76	+ 0 6.25			
	2833	+ 24 32	N	<i>d</i>	21 45.28	- 1.76	43.52	N	<i>d</i>	21 51.17	- 1.35	49.82	6.30			
	2840	+ 24 44	N	<i>c - 1.8</i> <i>b - 0.9</i> <i>a - 10.3</i>	22 48.19	- 1.76	46.43	N	<i>c - 1.0</i> <i>b + 10.3</i> <i>a + 36.6</i>	22 54.06	- 1.36	52.70	6.27			
	2850	+ 24 28	N	<i>s</i>	24 40.14	- 1.76	38.38	N	<i>s</i>	24 46.00	- 1.35	44.65	6.27			
	2860	+ 36 50	N	<i>Q - 1.71</i>	25 56.21	- 1.71	54.50	N	<i>Q - 1.55</i>	26 2.34	- 1.56	0.78	6.28	<i>m s</i> + 0 6.306	0.010	0.004
	2788	+ 21 7	S		13 36.21	- 1.78	34.43	S		13 42.04	- 1.30	40.74	6.31			
	2799	+ 18 43	S		16 44.57	- 1.79	42.78	S		16 50.39	- 1.27	49.12	6.34			
	2810	+ 17 34	S		18 10.63	- 1.79	8.84	S		18 16.43	- 1.25	15.18	6.34			
	2816	+ 17 26	S		19 17.16	- 1.79	15.37	S		19 23.01	- 1.25	21.76	6.39			
				Mean, $T_E$	8 19 37											+ 0 6.300
Jan. 28	2672	+ 28 8	N	<i>I. P. W.</i>	7 56 16.67	+ 1.66	18.33	N	<i>I. P. W.</i>	7 56 29.10	+ 1.54	30.64	+ 0 12.31			
	2700	+ 22 58	N	<i>d</i>	59 19.16	+ 1.69	20.85	N	<i>d</i>	59 31.49	+ 1.62	33.11	12.26			
	2718	+ 27 49	N	<i>c + 0.1</i> <i>b - 1.3</i> <i>a + 11.9</i>	8 1 36.93	+ 1.66	38.59	N	<i>c + 1.0</i> <i>b + 1.7</i> <i>a + 39.1</i>	8 1 49.40	+ 1.55	50.95	12.36			
	2727	+ 26 11	N	<i>s</i>	3 5.55	+ 1.67	7.22	N	<i>s</i>	3 17.94	+ 1.58	19.52	12.30			
	2700	+ 22 58	S	<i>Q + 1.72</i>	7 59 19.05	+ 1.69	20.74	S	<i>Q + 1.57</i>	7 59 31.46	+ 1.62	33.08	12.34	<i>m s</i> + 0 12.297	0.003	0.006
	2714	+ 21 55	S		8 0 49.35	+ 1.69	51.04	S		8 1 1.73	+ 1.64	3.37	12.33			
	2737	+ 14 59	S		4 21.10	+ 1.73	22.83	S		4 33.30	+ 1.75	35.05	12.22			
	2744	+ 18 0	S		5 26.70	+ 1.71	28.41	S		5 38.93	+ 1.70	40.63	12.22			
	2759	+ 18 1	S		7 25.83	+ 1.71	27.54	S		7 38.17	+ 1.70	39.87	12.33			
				Mean, $T_E$	8 1 58											+ 0 12.300

NOTE.— $1^d = 0^m 22.5$ . Transcribing Equation *not*, all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .028	M <sub>N</sub>
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 28	2788	+ 21 7	N	<i>I. P. W.</i>	8 13 31.58	-1.74	29.84	N	<i>I. P. W.</i>	8 13 43.59	-1.49	42.10	+ 0 12.26				
	2833	+ 24 32	N	<i>c + 0.1</i>	21 40.64	-1.76	38.88	N	<i>d</i>	21 52.73	-1.55	51.18	12.30				
	2840	+ 24 44	N	<i>b - 1.3</i> <i>a + 11.9</i>	22 43.50	-1.76	41.74	N	<i>b + 1.7</i> <i>a + 39.1</i>	22 55.66	-1.55	54.11	12.37				
	2850	+ 24 28	N	<i>s</i>	24 35.41	-1.76	33.65	N	<i>s</i>	24 47.62	-1.55	46.07	12.42				
	2860	+ 36 50	N	<i>Q - 1.72</i>	25 51.58	-1.84	49.74	N	<i>Q - 1.57</i>	26 3.92	-1.76	2.16	12.42				
	2788	+ 21 7	S		13 31.51	-1.74	29.77	S		13 43.57	-1.49	42.08	12.31				
	2799	+ 18 43	S		16 39.87	-1.73	38.14	S		16 51.86	-1.45	50.41	12.27				
	2810	+ 17 34	S		18 5.89	-1.73	4.16	S		18 17.90	-1.43	16.47	12.31				
	2816	+ 17 26	S		19 12.45	-1.73	10.72	S		19 24.50	-1.43	23.07	12.35				
			Mean, T <sub>E</sub>	8 19 32													
Jan. 29	2672	+ 28 8	N	<i>I. P. E.</i>	7 56 13.84	+1.65	15.49	N	<i>I. P. E.</i>	7 56 29.29	+1.58	30.87	+ 0 15.38				
	2700	+ 22 58	N	<i>c - 2.2</i>	59 16.31	+1.66	17.97	N	<i>d</i>	59 31.80	+1.62	33.42	15.45				
	2718	+ 27 49	N	<i>b + 0.3</i> <i>a - 1.4</i>	8 1 34.14	+1.65	35.79	N	<i>b + 1.9</i> <i>a + 17.6</i>	8 1 49.57	+1.58	51.15	15.36				
	2727	+ 26 11	N	<i>s</i>	3 2.69	+1.65	4.34	N	<i>s</i>	3 18.19	+1.59	19.78	15.44				
	2700	+ 22 58	S	<i>Q + 1.70</i>	7 59 16.27	+1.66	17.93	S	<i>Q + 1.57</i>	7 59 31.66	+1.62	33.28	15.35				
	2714	+ 21 55	S		8 0 46.61	+1.66	48.27	S		8 1 2.00	+1.62	3.62	15.35				
	2737	+ 14 59	S		4 18.20	+1.66	19.86	S		4 33.58	+1.66	35.24	15.38				
	2744	+ 18 0	S		5 23.85	+1.66	25.51	S		5 39.19	+1.64	40.83	15.32				
	2759	+ 18 1	S		7 23.03	+1.66	24.69	S		7 38.49	+1.64	40.13	15.44				
			Mean, T <sub>E</sub>	8 1 55													
Jan. 29	2788	+ 21 7	N	<i>I. P. E.</i>	8 13 28.74	-1.74	27.00	N	<i>I. P. E.</i>	8 13 43.97	-1.51	42.46	+ 0 15.46				
	2833	+ 24 32	N	<i>c - 2.2</i>	21 37.81	-1.74	36.07	N	<i>d</i>	21 52.98	-1.54	51.44	15.37				
	2840	+ 24 44	N	<i>b + 0.3</i> <i>a - 1.4</i>	22 40.68	-1.74	38.94	N	<i>b + 1.9</i> <i>a + 17.6</i>	22 55.88	-1.54	54.34	15.40				
	2850	+ 24 28	N	<i>s</i>	24 32.60	-1.74	30.86	N	<i>s</i>	24 47.82	-1.54	46.28	15.42				
	2860	+ 36 50	N	<i>Q - 1.70</i>	25 48.79	-1.74	47.05	N	<i>Q - 1.57</i>	26 4.01	-1.64	2.37	15.32				
	2788	+ 21 7	S		13 28.69	-1.74	26.95	S		13 43.82	-1.51	42.31	15.36				
	2799	+ 18 43	S		16 37.06	-1.74	35.32	S		16 52.17	-1.49	50.68	15.36				
	2810	+ 17 34	S		18 3.18	-1.74	1.44	S		18 18.21	-1.49	16.72	15.28				
	2816	+ 17 26	S		19 9.65	-1.74	7.91	S		19 24.80	-1.49	23.31	15.40				
			Mean, T <sub>E</sub>	8 19 30													

NOTE.— $1^{\text{d}} = 0^{\circ} 0225$ . Transcribing Equation 212, all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

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OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> 018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> 028	M <sub>N</sub>
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 30	2672	+ 28 8	N	<i>I. P. W.</i>	7 56 11.13	+ 1.62	12.75	N	<i>I. P. W.</i>	7 56 28.99	+ 1.46	30.45	+ 0 17.70				
	2700	+ 22 58	N	<i>d</i>	59 13.58	+ 1.65	15.23	N	<i>d</i>	59 31.40	+ 1.48	32.88	17.65				
	2718	+ 27 49	N	<i>c</i> - 1.8 <i>b</i> - 0.2 <i>a</i> + 2.3	8 1 31.40	+ 1.62	33.02	N	<i>c</i> - 1.1 <i>b</i> - 1.5 <i>a</i> + 9.3	8 1 49.34	+ 1.46	50.80	17.78				
	2727	+ 26 11	N	<i>s</i> Q + 1.69	2 59.97	+ 1.63	61.60	N	<i>s</i> Q + 1.55	3 17.81	+ 1.47	19.28	17.68				
	2700	+ 22 58	S		7 59 13.53	+ 1.65	15.18	S		7 59 31.39	+ 1.48	32.87	17.69				
	2714	+ 21 55	S		8 0 43.81	+ 1.65	45.46	S		8 1 1.70	+ 1.48	3.18	17.72				
	2737	+ 14 59	S		4 15.55	+ 1.66	17.21	S		4 33.40	+ 1.52	34.92	17.71				
	2744	+ 18 0	S		5 21.17	+ 1.65	22.82	S		5 38.92	+ 1.50	40.42	17.60				
	2759	+ 18 1	S		7 20.30	+ 1.65	21.95	S		7 38.21	+ 1.50	39.71	17.76				
				Mean, T <sub>E</sub>	8 1 52												
Jan. 30	2788	+ 21 7	N	<i>I. P. W.</i>	8 13 25.91	- 1.73	24.18	N	<i>I. P. W.</i>	8 13 43.54	- 1.61	41.93	+ 0 17.75				
	2833	+ 24 32	N	<i>d</i>	21 34.99	- 1.73	33.26	N	<i>d</i>	21 52.65	- 1.63	51.02	17.76				
	2840	+ 24 44	N	<i>c</i> - 1.8 <i>b</i> - 0.2 <i>a</i> + 2.3	22 37.91	- 1.73	36.18	N	<i>c</i> - 1.1 <i>b</i> - 1.5 <i>a</i> + 9.3	22 55.58	- 1.63	53.95	17.77				
	2850	+ 24 28	N	<i>s</i> Q - 1.69	24 29.85	- 1.73	28.12	N	<i>s</i> Q - 1.55	24 47.56	- 1.63	45.93	17.81				
	2860	+ 36 50	N		25 45.93	- 1.77	44.16	N		26 3.72	- 1.68	2.04	17.88				
	2788	+ 21 7	S		13 25.98	- 1.73	24.25	S		13 43.46	- 1.61	41.85	17.60				
	2799	+ 18 43	S		16 34.24	- 1.73	32.51	S		16 51.92	- 1.61	50.31	17.80				
	2810	+ 17 34	S		17 60.29	- 1.73	58.56	S		18 17.99	- 1.60	16.39	17.83				
	2816	+ 17 26	S		19 6.84	- 1.73	5.11	S		19 24.51	- 1.60	22.91	17.80				
				Mean, T <sub>S</sub>	8 19 27												

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\pi/2$ , all records having been transcribed by the same person.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .028	δL <sub>N</sub> - ρ
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 23	2347	+ 15 32	S	<i>I. P. W.</i>	7 443.95	+1.62	45.57	S	<i>I. P. W.</i>	7 18 39.10	+1.43	40.53	13 54.96				
	2359	+ 15 23	S	<i>c - 0.8</i>	6 15.89	+1.62	17.51	S	<i>c - 1.1</i>	20 11.06	+1.43	12.49	54.98				
	2373	+ 3 19	S	<i>b - 2.2</i> <i>a + 4.4</i> <i>Q + 1.68</i>	8 20.13	+1.64	21.77	S	<i>b - 3.7</i> <i>a - 2.1</i> <i>Q + 1.56</i>	22 15.26	+1.44	16.70	54.93				
Jan. 23	2442	+ 28 2	N	<i>I. P. W.</i>	7 18 39.25	-1.77	37.48	N	<i>I. P. W.</i>	7 32 34.03	-1.67	32.36	13 54.88				
	2469	+ 28 9	N	<i>c - 0.8</i>	22 43.80	-1.77	42.03	N	<i>c - 1.1</i>	36 38.51	-1.67	36.84	54.81				
	2472	+ 28 10	N	<i>b - 2.2</i> <i>a + 4.4</i> <i>Q - 1.68</i>	23 34.85	-1.77	33.08	N	<i>b - 3.7</i> <i>a - 2.1</i> <i>Q - 1.56</i>	37 29.65	-1.67	27.98	54.90				
	2455	+ 21 46	S	<i>Q - 1.68</i>	20 6.87	-1.75	5.12	S	<i>Q - 1.56</i>	34 1.71	-1.68	0.03	54.91				
	2460	+ 21 41	S		20 59.21	-1.75	57.46	S		34 53.99	-1.68	52.31	54.85				
	2480	+ 2 10	S		26 12.65	-1.72	10.93	S		40 7.42	-1.68	5.74	54.81				
Jan. 24	2301	+ 29 32	N	<i>I. P. E.</i>	6 56 10.50	+1.71	12.21	N	<i>I. P. E.</i>	7 10 5.53	+1.66	7.19	13 54.98				
	2313	+ 22 49	N	<i>c - 0.1</i>	58 21.90	+1.73	23.63	N	<i>c + 1.5</i>	12 16.89	+1.74	18.63	55.00				
	2331	+ 30 19	N	<i>b + 1.4</i> <i>a + 8.2</i> <i>Q + 1.70</i>	7 1 58.22	+1.71	59.93	N	<i>b + 5.3</i> <i>a + 29.7</i> <i>Q + 1.57</i>	15 53.26	+1.64	54.90	54.97				
	2340	+ 30 26	N	<i>Q + 1.70</i>	3 47.84	+1.71	49.55	N	<i>Q + 1.57</i>	17 42.92	+1.64	44.56	55.01				
	2318	+ 22 49	S		6 58 21.85	+1.73	23.58	S		12 16.87	+1.74	18.61	55.03				
	2322	+ 9 22	S		59 20.47	+1.77	22.24	S		13 15.36	+1.88	17.24	55.00				
	2347	+ 15 32	S		7 441.86	+1.75	43.61	S		18 36.90	+1.82	38.72	55.11				
	2359	+ 15 23	S		6 13.90	+1.75	15.65	S		20 8.86	+1.82	10.68	55.03				
	2373	+ 3 19	S		8 18.06	+1.79	19.85	S		22 12.83	+1.93	14.76	54.91				

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation  $\delta L$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Peral. Equations $H_N - H_S = + 0^{\text{h}} 0^{\text{m}} 18^{\text{s}}$ $S_N - S_S = + 0^{\text{h}} 0^{\text{m}} 38^{\text{s}}$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 24	2431	+ 25 17	N	<i>I. P. E.</i>	7 16 30.05	-1.68	28.37	N	<i>I. P. E.</i>	7 30 24.85	-1.44	23.41	13 55.04				
	2442	+ 28 2	N	<i>d</i>	18 37.13	-1.68	35.45	N	<i>d</i>	32 31.97	-1.47	30.50	55.05				
	2460	+ 21 41	N	<i>c - 0.1</i> <i>b + 1.4</i> <i>a + 8.2</i>	20 57.08	-1.67	55.41	N	<i>c + 1.5</i> <i>b + 5.3</i> <i>a + 29.7</i>	34 51.95	-1.39	50.56	55.15				
	2469	+ 28 9	N	<i>s</i>	22 41.66	-1.68	39.98	N	<i>s</i>	36 36.47	-1.47	35.00	55.02				
	2472	+ 28 10	N	<i>Q - 1.70</i>	23 32.75	-1.68	31.07	N	<i>Q - 1.57</i>	37 27.56	-1.47	26.09	55.02				
	2423	+ 20 40	S		15 12.06	-1.66	10.40	S		29 6.88	-1.38	5.50	55.10	<i>m s</i>	13 55.061	+	
	2455	+ 21 46	S		20 4.83	-1.67	3.16	S		33 59.61	-1.39	58.22	55.06			+	
	2460	+ 21 41	S		20 57.11	-1.67	55.44	S		34 51.85	-1.39	50.46	55.02				
	2480	+ 2 10	S		26 10.45	-1.61	8.84	S		40 5.13	-1.20	3.93	55.09			13 55.085	
Jan. 25	2301	+ 29 32	N	<i>I. P. W.</i>	6 56 8.30	+1.69	9.99	N	<i>I. P. W.</i>	7 10 3.46	+1.51	4.97	13 54.98				
	2313	+ 22 49	N	<i>d</i>	58 19.68	+1.73	21.41	N	<i>d</i>	12 14.73	+1.60	16.33	54.92				
	2331	+ 30 19	N	<i>c - 0.0</i> <i>b + 0.8</i> <i>a + 10.7</i>	7 1 55.99	+1.69	57.68	N	<i>c - 0.8</i> <i>b + 2.3</i> <i>a + 27.3</i>	15 51.11	+1.50	52.61	54.93				
	2340	+ 30 26	N	<i>s</i>	3 45.61	+1.69	47.30	N	<i>s</i>	17 40.67	+1.50	42.17	54.87				
	2313	+ 22 49	S	<i>Q + 1.71</i>	6 58 19.60	+1.73	21.33	S	<i>Q + 1.56</i>	12 14.61	+1.60	16.21	54.88	<i>m s</i>	13 54.924	+	
	2322	+ 9 22	S		59 18.25	+1.78	20.03	S		13 13.15	+1.73	14.88	54.85			+	
	2347	+ 15 32	S		7 439.66	+1.76	41.42	S		18 34.78	+1.67	36.45	55.03				
	2359	+ 15 23	S		6 11.62	+1.76	13.38	S		20 6.69	+1.67	8.36	54.98				
	2373	+ 3 19	S		8 15.85	+1.81	17.66	S		22 10.75	+1.79	12.54	54.88			13 54.952	
Jan. 26	2431	+ 25 17	N	<i>I. P. W.</i>	7 16 27.86	-1.70	26.16	N	<i>I. P. W.</i>	7 30 22.62	-1.55	21.07	13 54.91				
	2442	+ 28 2	N	<i>d</i>	18 34.95	-1.72	33.23	N	<i>d</i>	32 29.72	-1.59	28.13	54.90				
	2460	+ 21 41	N	<i>c - 0.0</i> <i>b + 0.8</i> <i>a + 10.7</i>	20 54.97	-1.69	53.28	N	<i>c - 0.8</i> <i>b + 2.3</i> <i>a + 27.3</i>	34 49.69	-1.51	48.18	54.90				
	2469	+ 28 9	N	<i>s</i>	22 39.50	-1.72	37.78	N	<i>s</i>	36 34.26	-1.59	32.67	54.89				
	2472	+ 28 10	N	<i>Q - 1.71</i>	23 30.63	-1.72	28.91	N	<i>Q - 1.56</i>	37 25.40	-1.59	23.81	54.90				
	2423	+ 20 40	S		15 9.87	-1.68	8.19	S		29 4.63	-1.50	3.13	54.94	<i>m s</i>	13 54.894	+	
	2455	+ 21 46	S		20 2.73	-1.69	1.04	S		33 57.36	-1.51	55.85	54.81			+	
	2460	+ 21 41	S		20 54.93	-1.69	53.24	S		34 49.62	-1.51	48.11	54.87				
	2480	+ 2 10	S		26 8.29	-1.61	6.68	S		40 2.93	-1.32	1.61	54.93			13 54.920	

NOTE.— $1^{\text{d}} = 0^{\text{h}} 0^{\text{m}} 22^{\text{s}}$ . Transcribing Equation 517, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^{\text{h}} 7^{\text{m}} 31^{\text{s}}$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^{\text{h}} 53^{\text{m}} 36^{\text{s}}$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group	
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time			Corrns. for Persl. Equations $H_N - H_S = +0^{\text{h}} 01^{\text{m}} 18^{\text{s}}$ $S_N - S_S = +0^{\text{h}} 02^{\text{m}} 08^{\text{s}}$
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Jan. 26	2301	+ 29 32	N	<i>I. P. E.</i>	6 56 58.4	+1.67	7.51	N	<i>I. P. E.</i>	7 10 11.11	+1.66	2.77	13 55.26		
	2313	+ 22 49	N	<i>d</i> <i>c</i> - 1.8 <i>b</i> - 0.9 <i>a</i> - 10.3	58 17.30	+1.65	18.95	N	<i>d</i> <i>c</i> - 1.0 <i>b</i> + 10.3 <i>a</i> + 36.6	12 12.43	+1.78	14.21	55.26		
	2331	+ 30 19	N	<i>s</i>	7 153.55	+1.68	55.23	N	<i>s</i>	15 48.84	+1.66	50.50	55.27		
	2340	+ 30 26	N	<i>s</i> <i>Q</i> + 1.71	3 43.12	+1.68	44.80	N	<i>s</i> <i>Q</i> + 1.55	17 38.42	+1.66	40.08	55.28		
	2313	+ 22 49	S		6 58 17.20	+1.65	18.85	S		12 12.44	+1.78	14.22	55.37	<i>m s</i> 13 55.302	+ 0.023
	2322	+ 9 22	S		59 15.97	+1.60	17.57	S		13 10.95	+1.95	12.90	55.33		+ 0.006
	2347	+ 15 32	S		7 437.30	+1.62	38.92	S		18 32.39	+1.88	34.27	55.35		
	2359	+ 15 23	S		6 9.34	+1.62	10.96	S		20 4.38	+1.88	6.26	55.30		
	2373	+ 3 19	S		8 13.56	+1.57	15.13	S		22 8.41	+2.02	10.43	55.30		
Jan. 26	2431	+ 25 17	N	<i>I. P. E.</i>	7 16 25.34	-1.76	23.58	N	<i>I. P. E.</i>	7 30 20.38	-1.35	19.03	13 55.45		
	2442	+ 28 2	N	<i>d</i> <i>c</i> - 1.8 <i>b</i> - 0.9 <i>a</i> - 10.3	18 32.39	-1.75	30.64	N	<i>d</i> <i>c</i> - 1.0 <i>b</i> + 10.3 <i>a</i> + 36.6	32 27.52	-1.41	26.11	55.47		
	2460	+ 21 41	N	<i>s</i>	20 52.46	-1.77	50.69	N	<i>s</i>	34 47.37	-1.31	46.06	55.37		
	2469	+ 28 9	N	<i>s</i> <i>Q</i> - 1.71	22 36.93	-1.75	35.18	N	<i>s</i> <i>Q</i> - 1.55	36 31.99	-1.41	30.58	55.40		
	2472	+ 28 10	N		23 28.05	-1.75	26.30	N		37 23.13	-1.41	21.72	55.42	<i>m s</i> 13 55.422	+ 0.023
	2423	+ 20 40	S		15 7.41	-1.78	5.63	S		29 2.35	-1.29	1.06	55.43		+ 0.004
	2455	+ 21 46	S		19 60.15	-1.77	58.38	S		33 55.09	-1.31	53.78	55.40		
	2460	+ 21 41	S		20 52.41	-1.77	50.64	S		34 47.41	-1.31	46.10	55.46		
	2480	+ 2 10	S		26 5.96	-1.85	4.11	S		39 60.57	-1.06	59.51	55.40		
Jan. 28	2313	+ 22 49	N	<i>I. P. W.</i>	6 58 12.56	+1.69	14.25	N	<i>I. P. W.</i>	7 12 7.46	+1.63	9.09	13 54.84		
	2331	+ 30 19	N	<i>d</i> <i>c</i> + 0.1 <i>b</i> - 1.3 <i>a</i> + 11.9	7 148.94	+1.65	50.59	N	<i>d</i> <i>c</i> + 1.0 <i>b</i> + 1.7 <i>a</i> + 39.1	15 43.87	+1.50	45.37	54.78		
	2340	+ 30 26	N	<i>s</i>	3 38.50	+1.65	40.15	N	<i>s</i>	17 33.50	+1.50	35.00	54.85		
	2313	+ 22 49	S	<i>s</i> <i>Q</i> + 1.72	6 58 12.51	+1.69	14.20	S	<i>s</i> <i>Q</i> + 1.57	12 7.38	+1.63	9.01	54.81	<i>m s</i> 13 54.876	+ 0.025
	2322	+ 9 22	S		59 11.10	+1.75	12.85	S		13 5.94	+1.84	7.78	54.93		+ 0.006
	2347	+ 15 32	S		7 432.58	+1.72	34.30	S		18 27.42	+1.74	29.16	54.86		
	2359	+ 15 23	S		6 4.52	+1.72	6.24	S		19 59.53	+1.75	61.28	55.04		
	2373	+ 3 19	S		8 8.72	+1.78	10.50	S		22 3.48	+1.92	5.40	54.90		

NOTE.—1<sup>4</sup> = 0<sup>h</sup> 02<sup>m</sup> 25<sup>s</sup>. Transcribing Equation #17, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*CHITTAGONG (E) Lat.  $22^{\circ} 20'$ , Long.  $6^{\text{h}} 7^{\text{m}} 51^{\text{s}}$ : AND CALCUTTA (W) Lat.  $22^{\circ} 33'$ , Long.  $5^{\text{h}} 53^{\text{m}} 36^{\text{s}}$ .

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 31 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> 018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> 028	δ L <sub>N</sub> - ρ
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group			
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time					
1883 Jan. 28	2431	+ 25 17	N	<i>I. P. W.</i> <i>d</i> a + 0 <sup>h</sup> 1 <sup>m</sup> b - 1 <sup>m</sup> 3 <sup>s</sup> a + 11 <sup>m</sup> 9 <sup>s</sup>	7 16 20 <sup>m</sup> 77 <sup>s</sup>	-1 <sup>m</sup> 77 <sup>s</sup>	19 <sup>m</sup> 00 <sup>s</sup>	N	<i>I. P. W.</i> <i>d</i> c + 1 <sup>m</sup> 0 <sup>s</sup> b + 1 <sup>m</sup> 7 <sup>s</sup> a + 39 <sup>m</sup> 1 <sup>s</sup>	7 30 15 <sup>m</sup> 44 <sup>s</sup>	-1 <sup>m</sup> 56 <sup>s</sup>	13 <sup>m</sup> 88 <sup>s</sup>	13 54 <sup>m</sup> 88 <sup>s</sup>	<i>m s</i> 13 54 <sup>m</sup> 90 <sup>s</sup> 7	+ 0 <sup>h</sup> 025	+ 0 <sup>h</sup> 004	13 54 <sup>m</sup> 93 <sup>s</sup> 6
2442	+ 28 2	N		18 27 <sup>m</sup> 89 <sup>s</sup>	-1 <sup>m</sup> 78 <sup>s</sup>	26 <sup>m</sup> 11 <sup>s</sup>	N		32 22 <sup>m</sup> 63 <sup>s</sup>	-1 <sup>m</sup> 60 <sup>s</sup>	21 <sup>m</sup> 03 <sup>s</sup>	54 <sup>m</sup> 92 <sup>s</sup>					
2460	+ 21 41	N		20 47 <sup>m</sup> 78 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	46 <sup>m</sup> 03 <sup>s</sup>	N		34 42 <sup>m</sup> 47 <sup>s</sup>	-1 <sup>m</sup> 50 <sup>s</sup>	40 <sup>m</sup> 97 <sup>s</sup>	54 <sup>m</sup> 94 <sup>s</sup>					
2469	+ 28 9	N	<i>s</i>	22 32 <sup>m</sup> 37 <sup>s</sup>	-1 <sup>m</sup> 78 <sup>s</sup>	30 <sup>m</sup> 59 <sup>s</sup>	N	<i>s</i>	36 27 <sup>m</sup> 13 <sup>s</sup>	-1 <sup>m</sup> 60 <sup>s</sup>	25 <sup>m</sup> 53 <sup>s</sup>	54 <sup>m</sup> 94 <sup>s</sup>					
2472	+ 28 10	N	<i>Q</i> - 1 <sup>m</sup> 72 <sup>s</sup>	23 23 <sup>m</sup> 46 <sup>s</sup>	-1 <sup>m</sup> 78 <sup>s</sup>	21 <sup>m</sup> 68 <sup>s</sup>	N	<i>Q</i> - 1 <sup>m</sup> 57 <sup>s</sup>	37 18 <sup>m</sup> 21 <sup>s</sup>	-1 <sup>m</sup> 60 <sup>s</sup>	16 <sup>m</sup> 61 <sup>s</sup>	54 <sup>m</sup> 93 <sup>s</sup>					
2423	+ 20 40	S		15 2 <sup>m</sup> 74 <sup>s</sup>	-1 <sup>m</sup> 74 <sup>s</sup>	1 <sup>m</sup> 00 <sup>s</sup>	S		28 57 <sup>m</sup> 36 <sup>s</sup>	-1 <sup>m</sup> 48 <sup>s</sup>	55 <sup>m</sup> 88 <sup>s</sup>	54 <sup>m</sup> 88 <sup>s</sup>					
2455	+ 21 46	S		19 55 <sup>m</sup> 52 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	53 <sup>m</sup> 77 <sup>s</sup>	S		33 50 <sup>m</sup> 19 <sup>s</sup>	-1 <sup>m</sup> 50 <sup>s</sup>	48 <sup>m</sup> 69 <sup>s</sup>	54 <sup>m</sup> 92 <sup>s</sup>					
2460	+ 21 41	S		20 47 <sup>m</sup> 79 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	46 <sup>m</sup> 04 <sup>s</sup>	S		34 42 <sup>m</sup> 52 <sup>s</sup>	-1 <sup>m</sup> 50 <sup>s</sup>	41 <sup>m</sup> 02 <sup>s</sup>	54 <sup>m</sup> 98 <sup>s</sup>					
2480	+ 2 10	S		25 61 <sup>m</sup> 22 <sup>s</sup>	-1 <sup>m</sup> 66 <sup>s</sup>	59 <sup>m</sup> 56 <sup>s</sup>	S		39 55 <sup>m</sup> 54 <sup>s</sup>	-1 <sup>m</sup> 21 <sup>s</sup>	54 <sup>m</sup> 33 <sup>s</sup>	54 <sup>m</sup> 77 <sup>s</sup>					
Jan. 29	2301	+ 29 32	N	<i>I. P. E.</i> <i>d</i> c - 2 <sup>m</sup> 2 <sup>s</sup> b + 0 <sup>m</sup> 3 <sup>s</sup> a - 1 <sup>m</sup> 4 <sup>s</sup>	6 55 58 <sup>m</sup> 41 <sup>s</sup>	+1 <sup>m</sup> 65 <sup>s</sup>	60 <sup>m</sup> 06 <sup>s</sup>	N	<i>I. P. E.</i> <i>d</i> c 0 <sup>m</sup> 0 <sup>s</sup> b + 1 <sup>m</sup> 9 <sup>s</sup> a + 17 <sup>m</sup> 6 <sup>s</sup>	7 9 53 <sup>m</sup> 75 <sup>s</sup>	+1 <sup>m</sup> 56 <sup>s</sup>	55 <sup>m</sup> 31 <sup>s</sup>	13 55 <sup>m</sup> 25 <sup>s</sup>	<i>m s</i> 13 55 <sup>m</sup> 26 <sup>s</sup> 1	+ 0 <sup>h</sup> 027	+ 0 <sup>h</sup> 006	13 55 <sup>m</sup> 29 <sup>s</sup> 4
2313	+ 22 49	N		58 9 <sup>m</sup> 84 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	11 <sup>m</sup> 50 <sup>s</sup>	N		12 5 <sup>m</sup> 16 <sup>s</sup>	+1 <sup>m</sup> 62 <sup>s</sup>	6 <sup>m</sup> 78 <sup>s</sup>	55 <sup>m</sup> 28 <sup>s</sup>					
2381	+ 30 19	N		7 146 <sup>m</sup> 12 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	47 <sup>m</sup> 78 <sup>s</sup>	N		15 41 <sup>m</sup> 38 <sup>s</sup>	+1 <sup>m</sup> 56 <sup>s</sup>	42 <sup>m</sup> 94 <sup>s</sup>	55 <sup>m</sup> 16 <sup>s</sup>					
2313	+ 22 49	S	<i>s</i>	6 58 9 <sup>m</sup> 73 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	11 <sup>m</sup> 39 <sup>s</sup>	S	<i>s</i>	12 5 <sup>m</sup> 01 <sup>s</sup>	+1 <sup>m</sup> 62 <sup>s</sup>	6 <sup>m</sup> 63 <sup>s</sup>	55 <sup>m</sup> 24 <sup>s</sup>					
2322	+ 9 22	S	<i>Q</i> + 1 <sup>m</sup> 70 <sup>s</sup>	59 8 <sup>m</sup> 40 <sup>s</sup>	+1 <sup>m</sup> 65 <sup>s</sup>	10 <sup>m</sup> 05 <sup>s</sup>	S	<i>Q</i> + 1 <sup>m</sup> 57 <sup>s</sup>	13 3 <sup>m</sup> 62 <sup>s</sup>	+1 <sup>m</sup> 70 <sup>s</sup>	5 <sup>m</sup> 32 <sup>s</sup>	55 <sup>m</sup> 27 <sup>s</sup>					
2347	+ 15 32	S		7 429 <sup>m</sup> 84 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	31 <sup>m</sup> 50 <sup>s</sup>	S		18 25 <sup>m</sup> 12 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	26 <sup>m</sup> 78 <sup>s</sup>	55 <sup>m</sup> 28 <sup>s</sup>					
2359	+ 15 23	S		6 1 <sup>m</sup> 78 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	3 <sup>m</sup> 44 <sup>s</sup>	S		19 57 <sup>m</sup> 12 <sup>s</sup>	+1 <sup>m</sup> 66 <sup>s</sup>	58 <sup>m</sup> 78 <sup>s</sup>	55 <sup>m</sup> 34 <sup>s</sup>					
2373	+ 3 19	S		8 6 <sup>m</sup> 08 <sup>s</sup>	+1 <sup>m</sup> 65 <sup>s</sup>	7 <sup>m</sup> 73 <sup>s</sup>	S		22 1 <sup>m</sup> 26 <sup>s</sup>	+1 <sup>m</sup> 74 <sup>s</sup>	3 <sup>m</sup> 00 <sup>s</sup>	55 <sup>m</sup> 27 <sup>s</sup>					
Jan. 29	2431	+ 25 17	N	<i>I. P. E.</i> <i>d</i> c - 2 <sup>m</sup> 2 <sup>s</sup> b + 0 <sup>m</sup> 3 <sup>s</sup> a - 1 <sup>m</sup> 4 <sup>s</sup>	7 16 17 <sup>m</sup> 96 <sup>s</sup>	-1 <sup>m</sup> 74 <sup>s</sup>	16 <sup>m</sup> 22 <sup>s</sup>	N	<i>I. P. E.</i> <i>d</i> c 0 <sup>m</sup> 0 <sup>s</sup> b + 1 <sup>m</sup> 9 <sup>s</sup> a + 17 <sup>m</sup> 6 <sup>s</sup>	7 30 12 <sup>m</sup> 96 <sup>s</sup>	-1 <sup>m</sup> 54 <sup>s</sup>	11 <sup>m</sup> 42 <sup>s</sup>	13 55 <sup>m</sup> 20 <sup>s</sup>	<i>m s</i> 13 55 <sup>m</sup> 28 <sup>s</sup> 9	+ 0 <sup>h</sup> 027	+ 0 <sup>h</sup> 005	13 55 <sup>m</sup> 32 <sup>s</sup> 1
2442	+ 28 2	N		18 25 <sup>m</sup> 06 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	23 <sup>m</sup> 31 <sup>s</sup>	N		32 20 <sup>m</sup> 18 <sup>s</sup>	-1 <sup>m</sup> 56 <sup>s</sup>	18 <sup>m</sup> 62 <sup>s</sup>	55 <sup>m</sup> 31 <sup>s</sup>					
2469	+ 28 9	N		22 29 <sup>m</sup> 54 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	27 <sup>m</sup> 79 <sup>s</sup>	N		36 24 <sup>m</sup> 66 <sup>s</sup>	-1 <sup>m</sup> 56 <sup>s</sup>	23 <sup>m</sup> 10 <sup>s</sup>	55 <sup>m</sup> 31 <sup>s</sup>					
2472	+ 28 10	N	<i>s</i>	23 20 <sup>m</sup> 67 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	18 <sup>m</sup> 92 <sup>s</sup>	N	<i>s</i>	37 15 <sup>m</sup> 80 <sup>s</sup>	-1 <sup>m</sup> 56 <sup>s</sup>	14 <sup>m</sup> 24 <sup>s</sup>	55 <sup>m</sup> 32 <sup>s</sup>					
2423	+ 20 40	S	<i>Q</i> - 1 <sup>m</sup> 70 <sup>s</sup>	14 60 <sup>m</sup> 00 <sup>s</sup>	-1 <sup>m</sup> 74 <sup>s</sup>	58 <sup>m</sup> 26 <sup>s</sup>	S	<i>Q</i> - 1 <sup>m</sup> 57 <sup>s</sup>	28 54 <sup>m</sup> 98 <sup>s</sup>	-1 <sup>m</sup> 51 <sup>s</sup>	53 <sup>m</sup> 47 <sup>s</sup>	55 <sup>m</sup> 21 <sup>s</sup>					
2455	+ 21 46	S		19 52 <sup>m</sup> 69 <sup>s</sup>	-1 <sup>m</sup> 74 <sup>s</sup>	50 <sup>m</sup> 95 <sup>s</sup>	S		33 47 <sup>m</sup> 80 <sup>s</sup>	-1 <sup>m</sup> 51 <sup>s</sup>	46 <sup>m</sup> 29 <sup>s</sup>	55 <sup>m</sup> 34 <sup>s</sup>					
2460	+ 21 41	S		20 45 <sup>m</sup> 00 <sup>s</sup>	-1 <sup>m</sup> 74 <sup>s</sup>	43 <sup>m</sup> 26 <sup>s</sup>	S		34 40 <sup>m</sup> 09 <sup>s</sup>	-1 <sup>m</sup> 51 <sup>s</sup>	38 <sup>m</sup> 58 <sup>s</sup>	55 <sup>m</sup> 32 <sup>s</sup>					
2480	+ 2 10	S		25 58 <sup>m</sup> 49 <sup>s</sup>	-1 <sup>m</sup> 75 <sup>s</sup>	56 <sup>m</sup> 74 <sup>s</sup>	S		39 53 <sup>m</sup> 43 <sup>s</sup>	-1 <sup>m</sup> 39 <sup>s</sup>	52 <sup>m</sup> 04 <sup>s</sup>	55 <sup>m</sup> 30 <sup>s</sup>					

NOTE.— $1^{\text{d}} = 0^{\text{h}} 0225$ . Transcribing Equation  $\pi$ ! all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 6 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> 018 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> 028	δ L <sub>N</sub> - ρ
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 30	2301	+ 29 32	N	<i>I. P. W.</i>	6 55 55.57	+ 1.62	57.19	N	<i>I. P. W.</i>	7 9 50.72	+ 1.45	52.17	13 54.98				
	2313	+ 22 49	N	<i>c - d</i>	58 6.97	+ 1.65	8.62	N	<i>c - d</i>	12 2.09	+ 1.48	3.57	54.95				
	2331	+ 30 19	N	<i>b - a</i>	7 143.25	+ 1.62	44.87	N	<i>b - a</i>	15 38.46	+ 1.45	39.91	55.04				
	2340	+ 30 26	N	<i>s</i>	3 32.92	+ 1.62	34.54	N	<i>s</i>	17 28.15	+ 1.45	29.60	55.06				
	2313	+ 22 49	S	<i>Q + 1.69</i>	6 58 6.96	+ 1.65	8.61	S	<i>Q + 1.55</i>	12 2.19	+ 1.48	3.67	55.06	<i>m s</i> 13 55.069	+ 0.029	+ 0.006	13 55.104
	2322	+ 9 22	S		59 5.50	+ 1.66	7.16	S		13 0.84	+ 1.54	2.38	55.22				
	2347	+ 15 32	S		7 427.01	+ 1.66	28.67	S		18 22.28	+ 1.52	23.80	55.13				
	2359	+ 15 23	S		5 58.91	+ 1.66	60.57	S		19 54.18	+ 1.52	55.70	55.13				
	2373	+ 3 19	S		8 3.13	+ 1.67	4.80	S		21 58.28	+ 1.57	59.85	55.05				
Jan. 30	2431	+ 25 17	N	<i>I. P. W.</i>	7 16 15.17	- 1.73	13.44	N	<i>I. P. W.</i>	7 30 10.08	- 1.63	8.45	13 55.01				
	2442	+ 28 2	N	<i>c - d</i>	18 22.22	- 1.76	20.46	N	<i>c - d</i>	32 17.10	- 1.64	15.46	55.00				
	2460	+ 21 41	N	<i>b - a</i>	20 42.19	- 1.73	40.46	N	<i>b - a</i>	34 37.14	- 1.62	35.52	55.06				
	2469	+ 28 9	N	<i>s</i>	22 26.80	- 1.76	25.04	N	<i>s</i>	36 21.59	- 1.65	19.94	54.90				
	2472	+ 28 10	N	<i>Q - 1.69</i>	23 17.93	- 1.76	16.17	N	<i>Q - 1.55</i>	37 12.86	- 1.64	11.22	55.05	<i>m s</i> 13 55.012	+ 0.029	+ 0.004	13 55.045
	2423	+ 20 40	S		14 57.15	- 1.73	55.42	S		28 52.11	- 1.61	50.50	55.08				
	2456	+ 21 46	S		19 49.98	- 1.73	48.25	S		33 44.80	- 1.62	43.18	54.93				
	2460	+ 21 41	S		20 42.25	- 1.73	40.52	S		34 37.18	- 1.62	35.56	55.04				
	2480	+ 2 10	S		25 55.67	- 1.71	53.96	S		39 50.53	- 1.53	49.00	55.04				

NOTE.—1<sup>d</sup> = 0<sup>h</sup> 0225. Transcribing Equation *wil*, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. $23^{\circ} 20'$ , Long. $6^h 7^m 31^s$ : AND CALCUTTA (W) Lat. $23^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.018$ $S_N - S_S = + 0^s.028$
	B.A.C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 23	3111	+ 11 8	S	<i>I. P. W.</i>	8 47 32.79	+ 1.63	34.42	S	<i>I. P. W.</i>	9 1 27.99	+ 1.44	29.43	13 55.01			
	3122	+ 12 3	S	$\begin{matrix} c - d \\ b - 2.2 \\ a + 4.4 \\ s \\ Q + 1.68 \end{matrix}$	49 33.14	+ 1.63	34.77	S	$\begin{matrix} c - d \\ b - 3.7 \\ a - 2.1 \\ s \\ Q + 1.56 \end{matrix}$	3 28.25	+ 1.44	29.69	54.92	$\begin{matrix} m s \\ 13 54.965 \end{matrix}$	- 0.014	+ 0.010
Jan. 23	3183	+ 25 40	N	<i>I. P. W.</i>	9 0 34.15	- 1.76	32.39	N	<i>I. P. W.</i>	9 14 28.97	- 1.68	27.29	13 54.90			
	3194	+ 25 41	N	$\begin{matrix} c - d \\ b - 2.2 \\ a + 4.4 \\ s \\ Q - 1.68 \end{matrix}$	2 57.37	- 1.76	55.61	N	$\begin{matrix} c - d \\ b - 3.7 \\ a - 2.1 \\ s \\ Q - 1.56 \end{matrix}$	16 52.25	- 1.68	50.57	54.96			
	3246	+ 23 29	N		11 14.40	- 1.75	12.65	N		25 9.23	- 1.68	7.55	54.90			
	3255	+ 28 53	N		12 38.97	- 1.77	37.20	N		26 33.81	- 1.67	32.14	54.94			
	3171	+ 18 12	S		8 58 38.86	- 1.74	37.12	S		12 33.69	- 1.68	32.01	54.89			
	3270	+ 13 11	S		9 14 50.21	- 1.73	48.48	S		28 45.19	- 1.68	43.51	55.03			
	3278	+ 16 58	S		16 46.90	- 1.74	45.16	S		30 41.82	- 1.68	40.14	54.98			
Jan. 24	3079	+ 24 55	N	<i>I. P. E.</i>	8 42 3.48	+ 1.72	5.20	N	<i>I. P. E.</i>	8 55 58.67	+ 1.71	60.38	13 55.18			
	3088	+ 28 22	N	$\begin{matrix} c - d \\ b + 1.4 \\ a + 8.2 \\ s \\ Q + 1.70 \end{matrix}$	43 21.16	+ 1.72	22.88	N	$\begin{matrix} c - d \\ b + 5.3 \\ a + 29.7 \\ s \\ Q + 1.57 \end{matrix}$	57 16.38	+ 1.67	18.05	55.17			
	3097	+ 38 55	N		45 15.03	+ 1.67	16.70	N		59 10.32	+ 1.52	11.84	55.14			
	3100	+ 38 45	N		45 32.42	+ 1.67	34.09	N		59 27.78	+ 1.52	29.30	55.21			
	3138	+ 21 46	N		53 5.89	+ 1.73	7.62	N		9 7 1.01	+ 1.75	2.76	55.14			
	3111	+ 11 8	S		47 34.11	+ 1.77	35.88	S		1 29.20	+ 1.86	31.06	55.18			
	3122	+ 12 3	S		49 34.31	+ 1.76	36.07	S		3 29.44	+ 1.85	31.29	55.22			
	3129	+ 18 31	S		51 32.15	+ 1.74	33.89	S		5 27.28	+ 1.79	29.07	55.18			
	3138	+ 21 46	S		53 5.87	+ 1.73	7.60	S		7 1.05	+ 1.75	2.80	55.20			

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^{\circ} 7' 31''$ : AND CALCUTTA (W) Lat. $22^{\circ} 35'$ , Long. $5^{\circ} 53' 36''$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ} 018$ $S_N - S_S = + 0^{\circ} 028$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1888					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 24	3183	+ 25 40	N	<i>I. P. E.</i>	9 0 35.34	-1.68	33.66	N	<i>I. P. E.</i>	9 14 30.27	-1.44	28.83	13 55.17			
	3194	+ 25 41	N	<i>c - 0.1</i>	2 58.57	-1.68	56.89	N	<i>d</i>	16 53.58	-1.44	52.14	55.25			
	3246	+ 23 29	N	<i>b + 1.4</i> <i>a + 8.2</i>	11 15.63	-1.67	13.96	N	<i>b + 5.3</i> <i>a + 29.7</i>	25 10.54	-1.41	9.13	55.17			
	3255	+ 28 53	N	<i>Q - 1.70</i>	12 40.22	-1.68	38.54	N	<i>s</i>	26 35.16	-1.47	33.69	55.15			
	3171	+ 18 12	S		8 58 39.95	-1.66	38.29	S	<i>Q - 1.57</i>	12 34.93	-1.35	33.58	55.29			
	3228	+ 8 42	S		9 8 28.20	-1.63	26.57	S		22 23.07	-1.26	21.81	55.24	<i>m s</i>	0.014	
	3246	+ 23 29	S		11 15.65	-1.67	13.98	S		25 10.53	-1.41	9.12	55.14			
	3270	+ 13 11	S		14 51.49	-1.64	49.85	S		28 46.40	-1.31	45.09	55.24			
	3278	+ 16 58	S		16 48.14	-1.65	46.49	S		30 43.04	-1.34	41.70	55.21			
Jan. 25	3079	+ 24 55	N	<i>I. P. W.</i>	8 42 4.94	+1.72	6.66	N	<i>I. P. W.</i>	8 56 0.16	+1.57	1.73	13 55.07			
	3098	+ 28 22	N	<i>a - 0.0</i>	43 22.63	+1.70	24.33	N	<i>d</i>	57 17.87	+1.53	19.40	55.07			
	3097	+ 38 55	N	<i>b + 0.8</i> <i>a + 10.7</i>	45 16.44	+1.64	18.08	N	<i>b + 2.3</i> <i>a + 27.3</i>	59 11.80	+1.38	13.18	55.10			
	3100	+ 38 45	N	<i>s</i>	45 33.84	+1.64	35.48	N	<i>s</i>	59 29.28	+1.38	30.66	55.18			
	3188	+ 21 46	N	<i>Q + 1.71</i>	53 7.29	+1.73	9.02	N	<i>Q + 1.56</i>	9 7 2.50	+1.61	4.11	55.09			
	3111	+ 11 8	S		47 35.52	+1.78	37.30	S		13 0.63	+1.72	32.35	55.05	<i>m s</i>	0.013	
	3122	+ 12 3	S		49 35.74	+1.77	37.51	S		33 0.87	+1.70	32.57	55.06			
	3129	+ 18 31	S		51 33.55	+1.75	35.30	S		5 28.69	+1.64	30.33	55.03			
	3138	+ 21 46	S		53 7.25	+1.73	8.98	S		7 2.54	+1.61	4.15	55.17			
Jan. 25	3183	+ 25 40	N	<i>I. P. W.</i>	9 0 36.86	-1.71	35.15	N	<i>I. P. W.</i>	9 14 31.69	-1.56	30.13	13 54.98			
	3194	+ 25 41	N	<i>a - 0.0</i>	2 60.05	-1.71	58.34	N	<i>d</i>	16 55.01	-1.56	53.45	55.11			
	3246	+ 23 29	N	<i>b + 0.8</i> <i>a + 10.7</i>	11 17.10	-1.70	15.40	N	<i>b + 2.3</i> <i>a + 27.3</i>	25 12.05	-1.53	10.52	55.12			
	3255	+ 28 53	N	<i>s</i>	12 41.67	-1.72	39.95	N	<i>s</i>	26 36.63	-1.60	35.03	55.08			
	3171	+ 18 12	S	<i>Q - 1.71</i>	8 58 41.55	-1.67	39.88	S	<i>Q - 1.56</i>	12 36.26	-1.48	34.78	54.90			
	3228	+ 8 42	S		9 8 29.67	-1.63	28.04	S		22 24.53	-1.38	23.15	55.11	<i>m s</i>	0.013	
	3246	+ 23 29	S		11 17.10	-1.70	15.40	S		25 12.01	-1.53	10.48	55.08			
	3270	+ 13 11	S		14 53.01	-1.65	51.36	S		28 47.87	-1.43	46.44	55.08			
	3278	+ 16 58	S		16 49.61	-1.67	47.94	S		30 44.49	-1.47	43.02	55.08			

NOTE.— $1^d = 0^{\circ} 0225$ . Transcribing Equation  $\text{sil}$ , all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

CHITTAGONG (E) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus for Persl. Equations $H_N - H_S = + 0^s.018$ $S_N - S_S = + 0^s.028$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Jan. 26	3079	+ 24 55	N	<i>I. P. E.</i>	8 42 5'96	+1'66	7'62	N	<i>I. P. E.</i>	8 56 1'32	+1'75	3'07	13 55'45			
	3088	+ 28 22	N	$c - 1^s.8$	43 23'62	+1'67	25'29	N	$c - 1^s.0$	57 19'03	+1'68	20'71	55'42			
	3097	+ 38 55	N	$b - 0^s.9$ $a - 10^s.3$	45 17'44	+1'73	19'17	N	$b + 10^s.3$ $a + 36^s.6$	59 13'04	+1'51	14'55	55'38			
	3100	+ 38 45	N	$s$	45 34'83	+1'72	36'55	N	$s$	59 30'49	+1'52	32'01	55'46			
	3138	+ 21 46	N	$Q + 1^s.71$	53 8'38	+1'65	10'03	N	$Q + 1^s.55$	9 7 3'74	+1'79	5'53	55'50			
	3111	+ 11 8	S		47 36'72	+1'60	38'32	S		1 31'84	+1'93	33'77	55'45	<i>m s</i> 13 55'442	- 0'010	+ 0'004
	3122	+ 12 3	S		49 36'93	+1'61	38'54	S		3 32'10	+1'91	34'01	55'47			
	3129	+ 18 31	S		51 34'71	+1'63	36'34	S		5 29'93	+1'83	31'76	55'42			
	3138	+ 21 46	S		53 8'43	+1'65	10'08	S		7 3'72	+1'79	5'51	55'43			
Jan. 26	3183	+ 25 40	N	<i>I. P. E.</i>	9 0 37'87	-1'75	36'12	N	<i>I. P. E.</i>	9 14 32'91	-1'36	31'55	13 55'43			
	3194	+ 25 41	N	$c - 1^s.8$	2 61'15	-1'75	59'40	N	$c - 1^s.0$	16 56'17	-1'36	54'81	55'41			
	3246	+ 23 29	N	$b - 0^s.9$ $a - 10^s.3$	11 18'16	-1'76	16'40	N	$b + 10^s.3$ $a + 36^s.6$	25 13'26	-1'33	11'93	55'53			
	3255	+ 28 53	N	$s$	12 42'68	-1'75	40'93	N	$s$	26 37'86	-1'42	36'44	55'51			
	3171	+ 18 12	S	$Q - 1^s.71$	8 58 42'60	-1'79	40'81	S	$Q - 1^s.55$	12 37'53	-1'26	36'27	55'46	<i>m s</i> 13 55'482	- 0'010	+ 0'006
	3228	+ 8 42	S		9 8 30'77	-1'83	28'94	S		22 25'69	-1'14	24'55	55'61			
	3246	+ 23 29	S		11 18'22	-1'76	16'46	S		25 13'16	-1'33	11'83	55'37			
	3270	+ 13 11	S		14 54'11	-1'81	52'30	S		28 49'04	-1'20	47'84	55'54			
	3278	+ 16 58	S		16 50'75	-1'79	48'96	S		30 45'69	-1'25	44'44	55'48			
Jan. 28	3079	+ 24 55	N	<i>I. P. W.</i>	8 42 7'77	+1'68	9'45	N	<i>I. P. W.</i>	8 56 2'92	+1'59	4'51	13 55'06			
	3088	+ 28 22	N	$c + 0^s.1$	43 25'47	+1'66	27'13	N	$c + 1^s.0$	57 20'60	+1'54	22'14	55'01			
	3097	+ 38 55	N	$b - 1^s.3$ $a + 11^s.9$	45 19'31	+1'58	20'89	N	$b + 1^s.7$ $a + 39^s.1$	59 14'64	+1'33	15'97	55'08			
	3100	+ 38 45	N	$s$	45 36'73	+1'58	38'31	N	$s$	59 32'11	+1'34	33'45	55'14			
	3138	+ 21 46	N	$Q + 1^s.72$	53 10'13	+1'69	11'82	N	$Q + 1^s.57$	9 7 5'21	+1'64	6'85	55'03	<i>m s</i> 13 55'039	- 0'003	+ 0'004
	3111	+ 11 8	S		47 38'35	+1'74	40'09	S		1 33'31	+1'81	35'12	55'03			
	3122	+ 12 3	S		49 38'65	+1'74	40'39	S		3 33'58	+1'79	35'37	54'98			
	3129	+ 18 31	S		51 36'46	+1'71	38'17	S		5 31'45	+1'70	33'15	54'98			
	3138	+ 21 46	S		53 10'15	+1'69	11'84	S		7 5'24	+1'64	6'88	55'04			

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation  $mL$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.018$ $S_N - S_S = + 0^s.028$	$\delta L_N + \rho$
	B A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 28	3183	+ 25 40	N	<i>I. P. W.</i>	9 0 39.66	-1.77	37.89	N	<i>I. P. W.</i>	9 14 34.46	-1.56	32.90	13 55.01				
	3194	+ 25 41	N	$c + 0.1$ $d$	3 3.00	-1.77	1.23	N	$c + 1.0$ $d$	16 57.71	-1.56	56.15	54.92				
	3246	+ 23 29	N	$b - 1.3$ $a + 11.9$	11 19.96	-1.76	18.20	N	$b + 1.7$ $a + 39.1$	25 14.77	-1.53	13.24	55.04				
	3255	+ 28 53	N	$s$ $Q - 1.72$	12 44.56	-1.78	42.78	N	$s$ $Q - 1.57$	26 39.43	-1.61	37.82	55.04				
	3171	+ 18 12	S		8 58 44.26	-1.73	42.53	S		12 39.08	-1.44	37.64	55.11				
	3228	+ 8 42	S		9 8 32.60	-1.69	30.91	S		22 27.19	-1.29	25.90	54.99				
	3246	+ 23 29	S		11 19.97	-1.76	18.21	S		25 14.76	-1.53	13.23	55.02				
	3270	+ 13 11	S		14 55.94	-1.71	54.23	S		28 50.55	-1.37	49.18	54.95				
	3278	+ 16 58	S		16 52.46	-1.72	50.74	S		30 47.19	-1.42	45.77	55.03				
Jan. 29	3079	+ 24 55	N	<i>I. P. E.</i>	8 42 7.59	+1.66	9.25	N	<i>I. P. E.</i>	8 56 3.06	+1.60	4.66	13 55.41				
	3088	+ 28 22	N	$c - 2.2$ $d$	43 25.28	+1.65	26.93	N	$c - 0.0$ $d$	57 20.80	+1.57	22.37	55.44				
	3097	+ 38 55	N	$b + 0.3$ $a - 1.4$	45 19.07	+1.66	20.73	N	$b + 1.9$ $a + 17.6$	59 14.69	+1.48	16.17	55.44				
	3100	+ 38 45	N	$s$ $Q + 1.70$	45 36.50	+1.66	38.16	N	$s$ $Q + 1.57$	59 32.13	+1.48	33.61	55.45				
	3138	+ 21 46	N		53 9.96	+1.66	11.62	N		9 7 5.50	+1.63	7.13	55.51				
	3111	+ 11 8	S		47 38.26	+1.65	39.91	S		1 33.62	+1.69	35.31	55.40				
	3122	+ 12 3	S		49 38.47	+1.65	40.12	S		3 33.89	+1.68	35.57	55.45				
	3129	+ 18 31	S		51 36.25	+1.66	37.91	S		5 31.71	+1.65	33.36	55.45				
	3138	+ 21 46	S		53 9.99	+1.66	11.65	S		7 5.47	+1.63	7.10	55.45				
Jan. 29	3183	+ 25 40	N	<i>I. P. E.</i>	9 0 39.47	-1.74	37.73	N	<i>I. P. E.</i>	9 14 34.72	-1.54	33.18	13 55.45				
	3194	+ 25 41	N	$c - 2.2$ $d$	3 2.70	-1.74	0.96	N	$c - 0.0$ $d$	16 58.03	-1.54	56.49	55.53				
	3246	+ 23 29	N	$b + 0.3$ $a - 1.4$	11 19.73	-1.74	17.99	N	$b + 1.9$ $a + 17.6$	25 14.89	-1.53	13.36	55.37				
	3255	+ 28 53	N	$s$ $Q - 1.70$	12 44.23	-1.75	42.48	N	$s$ $Q - 1.57$	26 39.55	-1.57	37.98	55.50				
	3171	+ 18 12	S		8 58 44.10	-1.74	42.36	S		12 39.36	-1.50	37.86	55.50				
	3228	+ 8 42	S		9 8 32.41	-1.75	30.66	S		22 27.47	-1.43	26.04	55.38				
	3246	+ 23 29	S		11 19.76	-1.74	18.02	S		25 14.84	-1.53	13.31	55.29				
	3270	+ 13 11	S		14 55.68	-1.75	53.93	S		28 50.85	-1.46	49.39	55.46				
	3278	+ 16 58	S		16 52.27	-1.74	50.53	S		30 47.41	-1.49	45.92	55.39				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CHITTAGONG (E) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.018$ $S_N - S_S = + 0^s.028$	$\delta L_N + \rho$
	B.A.C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Jan. 30	3079	+ 24 55	N	<i>I. P. W.</i>	8 42 7.37	+ 1.65	9.02	N	<i>I. P. W.</i>	8 56 2.80	+ 1.47	4.27	13 55.25				
	3088	+ 28 22	N	$c - \frac{d}{1.8}$	43 25.03	+ 1.62	26.65	N	$c - \frac{d}{1.1}$	57 20.46	+ 1.46	21.92	55.27				
	3097	+ 38 55	N	$b - \frac{0.2}{a + 2.3}$	45 18.87	+ 1.61	20.48	N	$b - \frac{1.5}{a + 9.3}$	59 14.34	+ 1.40	15.74	55.26				
	3100	+ 38 45	N	$\frac{s}{Q + 1.69}$	45 36.31	+ 1.61	37.92	N	$\frac{s}{Q + 1.55}$	59 31.82	+ 1.40	33.22	55.30				
	3138	+ 21 46	N		53 9.83	+ 1.65	11.48	N		9 7 5.14	+ 1.48	6.62	55.14				
	3111	+ 11 8	S		47 38.08	+ 1.66	39.74	S		1 33.37	+ 1.53	34.90	55.16				
	3122	+ 12 3	S		49 38.31	+ 1.66	39.97	S		3 33.67	+ 1.53	35.20	55.23				
	3129	+ 18 31	S		51 36.09	+ 1.65	37.74	S		5 31.45	+ 1.50	32.95	55.21				
	3138	+ 21 46	S		53 9.92	+ 1.65	11.57	S		7 5.20	+ 1.48	6.68	55.11				
													<i>m s</i>				
													13 55.214				
														+ 0.003			
															+ 0.004		
																13 55.221	
Jan. 30	3183	+ 25 40	N	<i>I. P. W.</i>	9 039.33	- 1.73	37.60	N	<i>I. P. W.</i>	9 1434.39	- 1.63	32.76	13 55.16				
	3194	+ 25 41	N	$c - \frac{d}{1.8}$	3 2.57	- 1.73	0.84	N	$c - \frac{d}{1.1}$	16 57.64	- 1.63	56.01	55.17				
	3246	+ 23 29	N	$b - \frac{0.2}{a + 2.3}$	11 19.53	- 1.73	17.80	N	$b - \frac{1.5}{a + 9.3}$	25 14.62	- 1.62	13.00	55.20				
	3255	+ 28 53	N	$\frac{s}{Q - 1.69}$	12 44.11	- 1.76	42.35	N	$\frac{s}{Q - 1.55}$	26 39.23	- 1.65	37.58	55.23				
	3171	+ 18 12	S		8 5844.02	- 1.73	42.29	S		12 39.07	- 1.60	37.47	55.18				
	3228	+ 8 42	S		9 832.27	- 1.72	30.55	S		22 27.21	- 1.56	25.65	55.10				
	3246	+ 23 29	S		11 19.58	- 1.73	17.85	S		25 14.71	- 1.62	13.09	55.24				
	3270	+ 13 11	S		14 55.52	- 1.72	53.80	S		28 50.60	- 1.58	49.02	55.22				
	3278	+ 16 58	S		16 52.14	- 1.72	50.42	S		30 47.15	- 1.60	45.55	55.13				
													<i>m s</i>				
													13 55.181				
														+ 0.003			
															+ 0.006		
																13 55.190	

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *not*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> .004 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> .001	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 8	3309	+ 26 27	N	<i>I. P. E.</i>	9 34 7 <sup>o</sup> .68	+ 1 <sup>o</sup> .71	9 <sup>o</sup> .39	N	<i>I. P. E.</i>	9 34 58 <sup>o</sup> .53	+ 1 <sup>o</sup> .60	60 <sup>o</sup> .13	+ 0 50 <sup>o</sup> .74				
	3317	+ 30 31	N	<i>d</i>	35 54 <sup>o</sup> .88	+ 1 <sup>o</sup> .69	56 <sup>o</sup> .57	N	<i>d</i>	36 45 <sup>o</sup> .69	+ 1 <sup>o</sup> .60	47 <sup>o</sup> .29	50 <sup>o</sup> .72				
	3371	+ 26 34	N	<i>c</i> + 0 <sup>o</sup> .5 <i>b</i> + 3 <sup>o</sup> .4 <i>a</i> + 10 <sup>o</sup> .4	45 19 <sup>o</sup> .61	+ 1 <sup>o</sup> .71	21 <sup>o</sup> .32	N	<i>c</i> - 0 <sup>o</sup> .9 <i>b</i> - 1 <sup>o</sup> .8 <i>a</i> - 0 <sup>o</sup> .9	46 10 <sup>o</sup> .54	+ 1 <sup>o</sup> .60	12 <sup>o</sup> .14	50 <sup>o</sup> .82				
	3392	+ 32 56	N	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .63	48 52 <sup>o</sup> .71	+ 1 <sup>o</sup> .68	54 <sup>o</sup> .39	N	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .67	49 43 <sup>o</sup> .62	+ 1 <sup>o</sup> .60	45 <sup>o</sup> .22	50 <sup>o</sup> .83				
	3333	+ 21 2	S		38 53 <sup>o</sup> .47	+ 1 <sup>o</sup> .73	55 <sup>o</sup> .20	S		39 44 <sup>o</sup> .44	+ 1 <sup>o</sup> .61	46 <sup>o</sup> .05	50 <sup>o</sup> .85				
	3343	+ 21 9	S		40 22 <sup>o</sup> .45	+ 1 <sup>o</sup> .72	24 <sup>o</sup> .17	S		41 13 <sup>o</sup> .43	+ 1 <sup>o</sup> .61	15 <sup>o</sup> .04	50 <sup>o</sup> .87				
	3386	+ 5 30	S		47 12 <sup>o</sup> .59	+ 1 <sup>o</sup> .78	14 <sup>o</sup> .37	S		48 3 <sup>o</sup> .66	+ 1 <sup>o</sup> .60	5 <sup>o</sup> .26	50 <sup>o</sup> .89				
				Mean, T <sub>E</sub>	9 41 32												
Feb. 8	3420	+ 32 6	N	<i>I. P. E.</i>	9 54 33 <sup>o</sup> .58	- 1 <sup>o</sup> .58	32 <sup>o</sup> .00	N	<i>I. P. E.</i>	9 55 24 <sup>o</sup> .59	- 1 <sup>o</sup> .74	22 <sup>o</sup> .85	+ 0 50 <sup>o</sup> .85				
	3427	+ 33 13	N	<i>d</i>	56 25 <sup>o</sup> .93	- 1 <sup>o</sup> .58	24 <sup>o</sup> .35	N	<i>d</i>	57 16 <sup>o</sup> .93	- 1 <sup>o</sup> .74	15 <sup>o</sup> .19	50 <sup>o</sup> .84				
	3456	+ 32 11	N	<i>c</i> + 0 <sup>o</sup> .5 <i>b</i> + 3 <sup>o</sup> .4 <i>a</i> + 10 <sup>o</sup> .4	10 046 <sup>o</sup> .63	- 1 <sup>o</sup> .58	45 <sup>o</sup> .05	N	<i>c</i> - 0 <sup>o</sup> .9 <i>b</i> - 1 <sup>o</sup> .8 <i>a</i> - 0 <sup>o</sup> .9	10 137 <sup>o</sup> .67	- 1 <sup>o</sup> .74	35 <sup>o</sup> .93	50 <sup>o</sup> .88				
	3500	+ 29 53	N	<i>s</i> <i>Q</i> - 1 <sup>o</sup> .63	8 51 <sup>o</sup> .80	- 1 <sup>o</sup> .56	50 <sup>o</sup> .24	N	<i>s</i> <i>Q</i> - 1 <sup>o</sup> .67	9 42 <sup>o</sup> .88	- 1 <sup>o</sup> .74	41 <sup>o</sup> .14	50 <sup>o</sup> .90				
	3440	+ 8 33	S		9 58 9 <sup>o</sup> .59	- 1 <sup>o</sup> .49	8 <sup>o</sup> .10	S		9 58 60 <sup>o</sup> .78	- 1 <sup>o</sup> .74	59 <sup>o</sup> .04	50 <sup>o</sup> .94				
	3463	+ 6 45	S		10 2 23 <sup>o</sup> .04	- 1 <sup>o</sup> .49	21 <sup>o</sup> .55	S		10 3 14 <sup>o</sup> .27	- 1 <sup>o</sup> .74	12 <sup>o</sup> .53	50 <sup>o</sup> .98				
	3475	+ 13 56	S		4 36 <sup>o</sup> .70	- 1 <sup>o</sup> .50	35 <sup>o</sup> .20	S		5 27 <sup>o</sup> .91	- 1 <sup>o</sup> .73	26 <sup>o</sup> .18	50 <sup>o</sup> .98				
	3485	+ 21 45	S		7 19 <sup>o</sup> .54	- 1 <sup>o</sup> .54	18 <sup>o</sup> .00	S		8 10 <sup>o</sup> .65	- 1 <sup>o</sup> .73	8 <sup>o</sup> .92	50 <sup>o</sup> .92				
				Mean, T <sub>E</sub>	10 1 38												
Feb. 9	3309	+ 26 27	N	<i>I. P. W.</i>	9 34 6 <sup>o</sup> .95	+ 1 <sup>o</sup> .52	8 <sup>o</sup> .47	N	<i>I. P. W.</i>	9 35 2 <sup>o</sup> .59	+ 1 <sup>o</sup> .52	4 <sup>o</sup> .11	+ 0 55 <sup>o</sup> .64				
	3317	+ 30 31	N	<i>d</i>	35 54 <sup>o</sup> .05	+ 1 <sup>o</sup> .51	55 <sup>o</sup> .56	N	<i>d</i>	36 49 <sup>o</sup> .71	+ 1 <sup>o</sup> .51	51 <sup>o</sup> .22	55 <sup>o</sup> .66				
	3371	+ 26 34	N	<i>c</i> - 2 <sup>o</sup> .8 <i>b</i> - 1 <sup>o</sup> .7 <i>a</i> + 6 <sup>o</sup> .0	45 18 <sup>o</sup> .82	+ 1 <sup>o</sup> .52	20 <sup>o</sup> .34	N	<i>c</i> - 1 <sup>o</sup> .6 <i>b</i> - 4 <sup>o</sup> .1 <i>a</i> + 2 <sup>o</sup> .8	46 14 <sup>o</sup> .58	+ 1 <sup>o</sup> .52	16 <sup>o</sup> .10	55 <sup>o</sup> .76				
	3333	+ 21 2	S	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .64	38 52 <sup>o</sup> .72	+ 1 <sup>o</sup> .53	54 <sup>o</sup> .25	S	<i>s</i> <i>Q</i> + 1 <sup>o</sup> .66	39 48 <sup>o</sup> .45	+ 1 <sup>o</sup> .53	49 <sup>o</sup> .98	55 <sup>o</sup> .73				
	3343	+ 21 9	S		40 21 <sup>o</sup> .66	+ 1 <sup>o</sup> .53	23 <sup>o</sup> .19	S		41 17 <sup>o</sup> .39	+ 1 <sup>o</sup> .53	18 <sup>o</sup> .92	55 <sup>o</sup> .73				
				Mean, T <sub>E</sub>	9 38 55												

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\approx 1/2$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .004 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .001	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 10	3309	+ 26 27	N	<i>I. P. E.</i>	9 34 6.14	+ 1.23	7.37	N	<i>I. P. E.</i>	9 35 6.64	+ 1.57	8.21	+ 1 0.84				
	3317	+ 30 31	N	<i>c - 9.3</i> <i>d</i>	35 53.29	+ 1.22	54.51	N	<i>c - 1.2</i> <i>d</i>	36 53.78	+ 1.56	55.34	0.83				
	3333	+ 21 2	S	<i>b - 6.2</i> <i>a + 2.8</i>	38 51.86	+ 1.26	53.12	S	<i>b - 2.7</i> <i>a + 3.7</i>	39 52.44	+ 1.59	54.03	0.91	<i>m s</i> + 1 0.885			
	3343	+ 21 9	S	<i>s</i> <i>Q + 1.63</i>	40 20.83	+ 1.26	22.09	S	<i>s</i> <i>Q + 1.67</i>	41 21.46	+ 1.59	23.05	0.96				
				Mean, T <sub>E</sub>	9 37 18												
Feb. 10	3420	+ 32 6	N	<i>I. P. E.</i>	9 54 31.98	- 2.05	29.93	N	<i>I. P. E.</i>	9 55 32.66	- 1.78	30.88	+ 1 0.95				
	3427	+ 33 13	N	<i>c - 9.3</i> <i>d</i>	56 24.38	- 2.05	22.83	N	<i>c - 1.2</i> <i>d</i>	57 24.99	- 1.78	23.21	0.88				
	3456	+ 32 11	N	<i>b - 6.2</i> <i>a + 2.8</i>	10 0 45.04	- 2.05	42.99	N	<i>b - 2.7</i> <i>a + 3.7</i>	10 1 45.77	- 1.78	43.99	1.00	<i>m s</i> + 1 0.963			
	3500	+ 29 53	N	<i>s</i> <i>Q - 1.63</i>	8 50.27	- 2.04	48.23	N	<i>s</i> <i>Q - 1.67</i>	9 50.93	- 1.78	49.15	0.92				
	3440	+ 8 33	S		9 58 7.95	- 1.96	5.99	S		9 59 8.77	- 1.73	7.04	1.05				
	3463	+ 6 45	S		10 2 21.51	- 1.96	19.55	S		10 3 22.24	- 1.73	20.51	0.96				
	3485	+ 21 45	S		7 17.94	- 2.00	15.94	S		8 18.68	- 1.76	16.92	0.98				
				Mean, T <sub>E</sub>	10 1 11												
Feb. 11	3309	+ 26 27	N	<i>I. P. W.</i>	9 34 5.35	+ 1.39	6.74	N	<i>I. P. W.</i>	9 35 10.33	+ 1.52	11.85	+ 1 5.11				
	3317	+ 30 31	N	<i>c - 4.1</i> <i>d</i>	35 52.43	+ 1.36	53.79	N	<i>c - 1.3</i> <i>d</i>	36 57.52	+ 1.52	59.04	5.25				
	3371	+ 26 34	N	<i>b - 4.9</i> <i>a + 6.4</i>	45 17.23	+ 1.39	18.62	N	<i>b - 4.4</i> <i>a + 1.2</i>	46 22.34	+ 1.52	23.86	5.24	<i>m s</i> + 1 5.200			
	3392	+ 32 56	N	<i>s</i> <i>Q + 1.62</i>	48 50.37	+ 1.35	51.72	N	<i>s</i> <i>Q + 1.66</i>	49 55.46	+ 1.50	56.96	5.24				
	3333	+ 21 2	S		38 51.14	+ 1.40	52.54	S		39 56.19	+ 1.52	57.71	5.17				
	3343	+ 21 9	S		40 20.11	+ 1.40	21.51	S		41 25.20	+ 1.52	26.72	5.21				
	3386	+ 5 30	S		47 10.32	+ 1.46	11.78	S		48 15.41	+ 1.55	16.96	5.18				
				Mean, T <sub>E</sub>	9 41 30												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation  $\pi/2$ , all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> 00 <sup>m</sup> 4 <sup>s</sup> S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>h</sup> 00 <sup>m</sup> 1 <sup>s</sup>	M <sub>N</sub>
			By Heavyside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 11	3420	+ 32 6	N	<i>I. P. W.</i>	9 54 31.26	-1.89	29.37	N	<i>I. P. W.</i>	9 55 36.41	-1.82	34.59	+1 5.22				
	3427	+ 33 13	N	<i>d</i>	56 23.61	-1.89	21.72	N	<i>d</i>	57 28.83	-1.82	27.01	5.29				
	3456	+ 32 11	N	<i>c</i> - 4.1 <i>b</i> - 4.9 <i>a</i> + 6.4	10 0 44.32	-1.89	42.43	N	<i>c</i> - 1.3 <i>b</i> - 4.4 <i>a</i> + 1.2	10 1 49.55	-1.82	47.73	5.30				
	3500	+ 29 53	N	<i>s</i> <i>Q</i> - 1.62	8 49.54	-1.88	47.66	N	<i>s</i> <i>Q</i> - 1.66	9 54.75	-1.80	52.95	5.29				
	3440	+ 8 33	S		9 58 7.32	-1.78	5.54	S		9 59 12.53	-1.78	10.75	5.21	<i>m s</i> + 1 5.246			
	3463	+ 6 45	S		10 2 20.83	-1.78	19.05	S		10 3 26.03	-1.77	24.26	5.21				
	3475	+ 13 56	S		4 34.49	-1.80	32.69	S		5 39.69	-1.78	37.91	5.22				
	3485	+ 21 45	S		7 17.25	-1.84	15.41	S		8 22.44	-1.80	20.64	5.23				
				Mean, T <sub>E</sub>	10 1 36												
Feb. 13	3309	+ 26 27	N	<i>I. P. E.</i>	9 34 4.42	+1.54	5.96	N	<i>I. P. E.</i>	9 35 17.10	+1.60	18.70	+1 12.74				
	3317	+ 30 31	N	<i>d</i> <i>c</i> + 1.5	35 51.64	+1.52	53.16	N	<i>d</i> <i>c</i> - 1.6	37 4.26	+1.60	5.86	12.70				
	3371	+ 26 34	N	<i>b</i> - 5.2 <i>a</i> + 8.2	45 16.43	+1.54	17.97	N	<i>b</i> - 0.9 <i>a</i> - 1.4	46 29.10	+1.60	30.70	12.73				
	3392	+ 32 56	N	<i>s</i> <i>Q</i> + 1.64	48 49.55	+1.50	51.05	N	<i>s</i> <i>Q</i> + 1.66	50 2.22	+1.60	3.82	12.77				
	3333	+ 21 2	S		38 50.32	+1.55	51.87	S		40 3.02	+1.60	4.62	12.75	<i>m s</i> + 1 12.751			
	3343	+ 21 9	S		40 19.30	+1.55	20.85	S		41 32.01	+1.60	33.61	12.76				
	3386	+ 5 30	S		47 9.42	+1.61	11.03	S		48 22.25	+1.59	23.84	12.81				
				Mean, T <sub>E</sub>	9 41 29												
Feb. 13	3420	+ 32 6	N	<i>I. P. E.</i>	9 54 30.41	-1.78	28.63	N	<i>I. P. E.</i>	9 55 43.22	-1.72	41.50	+1 12.87				
	3427	+ 33 13	N	<i>d</i> <i>c</i> + 1.5	56 22.70	-1.78	20.92	N	<i>d</i> <i>c</i> - 1.6	57 35.51	-1.72	33.79	12.87				
	3456	+ 32 11	N	<i>b</i> - 5.2 <i>a</i> + 8.2	10 0 43.39	-1.78	41.61	N	<i>b</i> - 0.9 <i>a</i> - 1.4	10 1 56.19	-1.72	54.47	12.86				
	3500	+ 29 53	N	<i>s</i> <i>Q</i> - 1.64	8 48.66	-1.76	46.90	N	<i>s</i> <i>Q</i> - 1.66	9 61.46	-1.72	59.74	12.84				
	3440	+ 8 33	S		9 58 6.36	-1.67	4.69	S		9 59 19.36	-1.73	17.63	12.94	<i>m s</i> + 1 12.865			
	3463	+ 6 45	S		10 2 19.88	-1.67	18.21	S		10 3 32.82	-1.73	31.09	12.88				
	3475	+ 13 56	S		4 33.60	-1.70	31.90	S		5 46.46	-1.73	44.73	12.83				
	3485	+ 21 45	S		7 16.36	-1.73	14.63	S		8 29.18	-1.72	27.46	12.83				
				Mean, T <sub>E</sub>	10 1 35												

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\text{all}$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_s = + 0^s.004$ $S_N - S_s = - 0^s.001$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 14	3309	+ 26 27	N	<i>I. P. W.</i>	9 34 4.24	+ 1.46	5.70	N	<i>I. P. W.</i>	9 35 20.15	+ 1.75	21.90	+ 1 16.20			
	3317	+ 30 31	N	<i>d</i>	35 51.33	+ 1.46	52.79	N	<i>d</i>	37 7.29	+ 1.75	9.04	16.25			
	3371	+ 26 34	N	<i>c - 4.5</i> <i>b - 3.2</i> <i>a - 9.3</i>	45 16.13	+ 1.46	17.59	N	<i>c - 2.0</i> <i>b + 5.2</i> <i>a + 5.6</i>	46 32.06	+ 1.75	33.81	16.22			
	3392	+ 32 56	N	<i>s</i> <i>Q + 1.63</i>	48 49.25	+ 1.48	50.73	N	<i>s</i> <i>Q + 1.67</i>	50 5.22	+ 1.74	6.96	16.23	<i>m s</i> + 1 16.241	0.056	0.002
	3333	+ 21 2	S		38 50.08	+ 1.43	51.51	S		40 6.02	+ 1.75	7.77	16.26			
	3343	+ 21 9	S		40 19.07	+ 1.44	20.51	S		41 35.03	+ 1.75	36.78	16.27			
	3386	+ 5 30	S		47 9.35	+ 1.40	10.75	S		48 25.23	+ 1.78	27.01	16.26			
				Mean, $T_E$	9 41 28											+ 1 16.183
Feb. 14	3420	+ 32 6	N	<i>I. P. W.</i>	9 54 30.13	- 1.79	28.34	N	<i>I. P. W.</i>	9 55 46.22	- 1.59	44.63	+ 1 16.29			
	3427	+ 33 13	N	<i>d</i>	56 22.45	- 1.78	20.67	N	<i>d</i>	57 38.58	- 1.60	36.98	16.31			
	3456	+ 32 11	N	<i>c - 4.5</i> <i>b - 3.2</i> <i>a - 9.3</i>	10 0 43.26	- 1.79	41.47	N	<i>c - 2.0</i> <i>b + 5.2</i> <i>a + 5.6</i>	10 1 59.26	- 1.59	57.67	16.20			
	3500	+ 29 53	N	<i>s</i> <i>Q - 1.63</i>	8 48.40	- 1.80	46.60	N	<i>s</i> <i>Q - 1.67</i>	10 4.52	- 1.60	2.92	16.32	<i>m s</i> + 1 16.259	0.056	0.003
	3440	+ 8 33	S		9 58 6.39	- 1.85	4.54	S		9 59 22.40	- 1.57	20.83	16.29			
	3463	+ 6 45	S		10 2 19.88	- 1.86	18.02	S		10 3 35.83	- 1.57	34.26	16.24			
	3475	+ 13 56	S		4 33.52	- 1.83	31.69	S		5 49.50	- 1.57	47.93	16.24			
	3485	+ 21 45	S		7 16.28	- 1.82	14.46	S		8 32.22	- 1.58	30.64	16.18			+ 1 16.200
				Mean, $T_E$	10 1 35											

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation nil, all records having been transcribed by the same person.



## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 56 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0.004 S <sub>N</sub> - S <sub>S</sub> = - 0.001	δL <sub>N</sub> - ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 8	2841	+ 26 35	N	<i>I. P. E.</i>	8 22 1.06	+ 1.71	2.77	N	<i>I. P. E.</i>	8 46 53.97	+ 1.60	55.57	24 52.80				
	2860	+ 36 50	N	<i>d</i> <i>c + 0.5</i>	25 4.76	+ 1.66	6.42	N	<i>d</i> <i>c - 0.9</i>	49 57.58	+ 1.59	59.17	52.75				
	2871	+ 36 49	N	<i>b + 3.4</i> <i>a + 10.4</i>	26 26.12	+ 1.66	27.78	N	<i>b - 1.8</i> <i>a - 0.9</i>	51 19.06	+ 1.59	20.65	52.87				
	2905	+ 32 56	N	<i>s</i> <i>Q + 1.63</i>	31 27.67	+ 1.68	29.35	N	<i>s</i> <i>Q + 1.67</i>	56 20.58	+ 1.60	22.18	52.83				
	2888	+ 15 43	S		28 46.97	+ 1.75	48.72	S		53 40.02	+ 1.61	41.63	52.91				
	2922	+ 19 57	S		32 57.33	+ 1.73	59.06	S		57 50.35	+ 1.61	51.96	52.90				
	2925	+ 20 0	S		33 26.68	+ 1.73	28.41	S		58 19.63	+ 1.61	21.24	52.83				
	2937	+ 21 53	S		35 43.89	+ 1.72	45.61	S		9 0 6.93	+ 1.61	38.54	52.93				
													<i>m s</i> 24 52.853		+ 0.019		
Feb. 8	8000	+ 28 42	N	<i>I. P. E.</i>	8 44 42.86	- 1.56	41.30	N	<i>I. P. E.</i>	9 9 35.80	- 1.74	34.06	24 52.76				
	8046	+ 30 41	N	<i>d</i> <i>c + 0.5</i>	50 8.68	- 1.57	7.11	N	<i>d</i> <i>c - 0.9</i>	14 61.60	- 1.74	59.86	52.75				
	8056	+ 32 52	N	<i>b + 3.4</i> <i>a + 10.4</i>	51 38.03	- 1.58	36.45	N	<i>b - 1.8</i> <i>a - 0.9</i>	16 30.97	- 1.74	29.23	52.78				
	8068	+ 32 43	N	<i>s</i> <i>Q - 1.63</i>	53 30.32	- 1.58	28.74	N	<i>s</i> <i>Q - 1.67</i>	18 23.06	- 1.74	21.32	52.58				
	2970	+ 12 32	S		39 47.37	- 1.50	45.87	S		4 40.46	- 1.74	38.72	52.85				
	2977	+ 12 59	S		41 29.87	- 1.50	28.37	S		6 22.86	- 1.73	21.13	52.76				
	3017	+ 20 25	S		46 30.03	- 1.53	28.50	S		11 23.06	- 1.73	21.33	52.83				
													<i>m s</i> 24 52.759		+ 0.019		
Feb. 9	2841	+ 26 35	N	<i>I. P. W.</i>	8 22 0.33	+ 1.52	1.85	N	<i>I. P. W.</i>	8 46 52.91	+ 1.52	54.43	24 52.58				
	2860	+ 36 50	N	<i>d</i> <i>c - 2.8</i>	25 3.97	+ 1.47	5.44	N	<i>d</i> <i>c - 1.6</i>	49 56.55	+ 1.50	58.05	52.61				
	2871	+ 36 49	N	<i>b - 1.7</i> <i>a + 6.0</i>	26 25.47	+ 1.47	26.94	N	<i>b - 4.1</i> <i>a + 2.8</i>	51 17.94	+ 1.50	19.44	52.50				
	2905	+ 32 56	N	<i>s</i> <i>Q + 1.64</i>	31 27.07	+ 1.49	28.56	N	<i>s</i> <i>Q + 1.66</i>	56 19.48	+ 1.50	20.98	52.42				
	2888	+ 15 43	S		28 46.24	+ 1.55	47.79	S		53 38.77	+ 1.54	40.31	52.52				
	2922	+ 19 57	S		32 56.67	+ 1.54	58.21	S		57 49.14	+ 1.53	50.67	52.46				
	2925	+ 20 0	S		33 25.96	+ 1.54	27.50	S		58 18.42	+ 1.53	19.95	52.45				
	2937	+ 21 53	S		35 43.19	+ 1.53	44.72	S		9 0 35.72	+ 1.53	37.25	52.53				
													<i>m s</i> 24 52.509		+ 0.018		
															- 0.003		
																	24 52.524

NOTE.— $1^d = 0.0225$ . Transcribing Equation *will*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*CALCUTTA (E) Lat.  $22^{\circ} 33'$ , Long.  $5^h 53^m 36^s$ ; AND FYZABAD (W) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E. Clock	Corrns. for Persl. Equations $H_N - H_S = + 0.004$ $S_N - S_S = - 0.001$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 9	3000	+ 28 42	N	<i>I. P. W.</i>	8 44 42.21	-1.77	40.44	N	<i>I. P. W.</i>	9 9 34.78	-1.80	32.98	24 52.54				
	3046	+ 30 41	N	$\begin{matrix} d \\ c - 2.8 \end{matrix}$	50 7.94	-1.77	6.17	N	$\begin{matrix} d \\ c - 1.6 \end{matrix}$	14 60.45	-1.81	58.64	52.47				
	3056	+ 32 52	N	$\begin{matrix} b - 1.7 \\ a + 6.0 \end{matrix}$	51 37.22	-1.79	35.43	N	$\begin{matrix} b - 4.1 \\ a + 2.8 \end{matrix}$	16 29.86	-1.82	28.04	52.61				
	3068	+ 32 43	N	$\begin{matrix} s \\ Q - 1.64 \end{matrix}$	53 29.35	-1.78	27.57	N	$\begin{matrix} s \\ Q - 1.66 \end{matrix}$	18 21.90	-1.82	20.08	52.51	<i>m s</i> 24 52.54			
	2970	+ 12 32	S		39 46.66	-1.72	44.94	S		4 39.26	-1.77	37.49	52.55		+ 0.016		
	2977	+ 12 59	S		41 29.01	-1.72	27.29	S		6 21.61	-1.77	19.84	52.55				
	3017	+ 20 25	S		46 29.31	-1.74	27.57	S		11 21.86	-1.79	20.07	52.50				
	3031	+ 14 38	S		48 25.74	-1.73	24.01	S		13 18.25	-1.78	16.47	52.46				
Feb. 10	2841	+ 26 35	N	<i>I. P. E.</i>	8 21 59.31	+1.48	60.79	N	<i>I. P. E.</i>	8 46 51.89	+1.57	53.46	24 52.67				
	2860	+ 36 50	N	$\begin{matrix} d \\ o + 0.7 \end{matrix}$	25 2.90	+1.46	4.36	N	$\begin{matrix} d \\ c - 1.2 \end{matrix}$	49 55.54	+1.55	57.09	52.73				
	2871	+ 36 49	N	$\begin{matrix} b - 6.2 \\ a + 2.8 \end{matrix}$	26 24.32	+1.46	25.78	N	$\begin{matrix} b - 2.7 \\ a + 3.7 \end{matrix}$	51 16.94	+1.55	18.49	52.71				
	2905	+ 32 56	N	$\begin{matrix} s \\ Q + 1.63 \end{matrix}$	31 25.90	+1.48	27.38	N	$\begin{matrix} s \\ Q + 1.67 \end{matrix}$	56 18.51	+1.56	20.07	52.69	<i>m s</i> 24 52.710			
	2888	+ 15 43	S		28 45.19	+1.52	46.71	S		53 37.79	+1.60	39.39	52.68		+ 0.015		
	2922	+ 19 57	S		32 55.55	+1.50	57.05	S		57 48.19	+1.59	49.78	52.73				
	2925	+ 20 0	S		33 24.82	+1.50	26.32	S		58 17.46	+1.59	19.05	52.73				
	2937	+ 21 53	S		35 42.12	+1.50	43.62	S		9 034.78	+1.58	36.36	52.74				
Feb. 10	3000	+ 28 42	N	<i>I. P. E.</i>	8 44 41.09	-1.78	39.31	N	<i>I. P. E.</i>	9 9 33.82	-1.77	32.05	24 52.74				
	3046	+ 30 41	N	$\begin{matrix} d \\ c + 0.7 \end{matrix}$	50 6.82	-1.78	5.04	N	$\begin{matrix} d \\ c - 1.2 \end{matrix}$	14 59.51	-1.78	57.73	52.69				
	3056	+ 32 52	N	$\begin{matrix} b - 6.2 \\ a + 2.8 \end{matrix}$	51 36.20	-1.78	34.42	N	$\begin{matrix} b - 2.7 \\ a + 3.7 \end{matrix}$	16 28.93	-1.78	27.15	52.73				
	3068	+ 32 43	N	$\begin{matrix} s \\ Q - 1.63 \end{matrix}$	53 28.28	-1.78	26.50	N	$\begin{matrix} s \\ Q - 1.67 \end{matrix}$	18 21.03	-1.78	19.25	52.75	<i>m s</i> 24 52.765			
	2970	+ 12 32	S		39 45.54	-1.74	43.80	S		4 38.35	-1.74	36.61	52.81		+ 0.015		
	2977	+ 12 59	S		41 27.95	-1.74	26.21	S		6 20.74	-1.74	19.00	52.79				
	3017	+ 20 25	S		46 28.15	-1.76	26.39	S		11 20.97	-1.75	19.22	52.83				
	3031	+ 14 38	S		48 24.63	-1.74	22.89	S		13 17.41	-1.74	15.67	52.78				

NOTE.— $1^d = 0.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*CALCUTTA (E) Lat.  $22^\circ 38'$ , Long.  $85^\circ 53' 36''$ ; AND FYZABAD (W) Lat.  $26^\circ 47'$ , Long.  $68^\circ 28' 42''$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $H_N - H_S = +0.004$ $S_N - S_S = -0.001$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 11	2860	+ 36 50	N	<i>I. P. W.</i>	8 25 2.28	+ 1.34	3.62	N	<i>I. P. W.</i>	8 49 54.76	+ 1.49	56.25	24 52.63				
	2871	+ 36 49	N	<i>d</i>	26 23.78	+ 1.34	25.12	N	<i>d</i>	51 16.14	+ 1.49	17.63	52.51				
	2905	+ 32 56	N	$\begin{matrix} c - 4.1 \\ b - 4.9 \\ a + 6.4 \end{matrix}$	31 25.33	+ 1.35	26.68	N	$\begin{matrix} c - 1.3 \\ b - 4.4 \\ a + 1.2 \end{matrix}$	56 17.75	+ 1.50	19.25	52.57				
	2888	+ 15 43	S	<i>s</i>	28 44.64	+ 1.44	46.08	S	<i>s</i>	53 37.08	+ 1.54	38.62	52.54				
	2922	+ 19 57	S	$Q + 1.62$	32 55.10	+ 1.41	56.51	S	$Q + 1.66$	57 47.38	+ 1.53	48.91	52.40	<i>m s</i>	+ 0.010		
	2925	+ 20 0	S		33 24.33	+ 1.41	25.74	S		58 16.66	+ 1.53	18.19	52.45				
	2937	+ 21 53	S		35 41.64	+ 1.40	43.04	S		9 034.04	+ 1.52	35.56	52.52				
														24 52.517		24 52.524	
Feb. 11	3000	+ 28 42	N	<i>I. P. W.</i>	8 44 40.60	- 1.87	38.73	N	<i>I. P. W.</i>	9 9 32.97	- 1.80	31.17	24 52.44				
	3056	+ 32 52	N	<i>d</i>	51 35.65	- 1.89	33.76	N	<i>d</i>	16 28.12	- 1.82	26.30	52.54				
	3068	+ 32 43	N	$\begin{matrix} c - 4.1 \\ b - 4.9 \\ a + 6.4 \end{matrix}$	53 27.74	- 1.89	25.85	N	$\begin{matrix} c - 1.3 \\ b - 4.4 \\ a + 1.2 \end{matrix}$	18 20.21	- 1.82	18.39	52.54				
	2977	+ 12 59	S	<i>s</i>	41 27.46	- 1.80	25.66	S	<i>s</i>	6 19.86	- 1.78	18.08	52.42				
	3017	+ 20 25	S	$Q - 1.62$	46 27.71	- 1.83	25.88	S	$Q - 1.66$	11 20.16	- 1.80	18.36	52.48	<i>m s</i>	+ 0.010		
	3031	+ 14 38	S		48 24.19	- 1.80	22.39	S		13 16.59	- 1.78	14.81	52.42				
														24 52.473		24 52.480	
Feb. 13	2841	+ 26 35	N	<i>I. P. E.</i>	8 21 57.76	+ 1.54	59.30	N	<i>I. P. E.</i>	8 46 50.48	+ 1.60	52.08	24 52.78				
	2860	+ 36 50	N	<i>d</i>	25 1.44	+ 1.48	2.92	N	<i>d</i>	49 54.05	+ 1.61	55.66	52.74				
	2871	+ 36 49	N	$\begin{matrix} c - 1.5 \\ b - 5.2 \\ a + 8.2 \end{matrix}$	26 22.92	+ 1.48	24.40	N	$\begin{matrix} c - 1.6 \\ b - 0.9 \\ a - 1.4 \end{matrix}$	51 15.49	+ 1.61	17.10	52.70				
	2905	+ 32 56	N	<i>s</i>	31 24.39	+ 1.50	25.89	N	<i>s</i>	56 16.98	+ 1.60	18.58	52.69				
	2888	+ 15 43	S	$Q + 1.64$	28 43.70	+ 1.58	45.28	S	$Q + 1.66$	53 36.39	+ 1.59	37.98	52.70				
	2922	+ 19 57	S		32 54.08	+ 1.57	55.65	S		57 46.78	+ 1.60	48.38	52.73	<i>m s</i>	+ 0.006		
	2925	+ 20 0	S		33 23.37	+ 1.57	24.94	S		58 16.03	+ 1.60	17.63	52.69				
	2937	+ 21 53	S		35 40.65	+ 1.55	42.20	S		9 033.33	+ 1.60	34.93	52.73				
														24 52.720		24 52.723	

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $m$ , all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*CALCUTTA (E) Lat.  $22^\circ 33'$ , Long.  $5^h 53^m 36^s$ ; AND FYZABAD (W) Lat.  $26^\circ 47'$ , Long.  $5^h 28^m 42^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.004$ $S_N - S_S = - 0^s.001$	$\delta L_N - \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 13	3000	+ 28 42	N	<i>I. P. E.</i>	8 44 39.70	-1.75	37.95	N	<i>I. P. E.</i>	9 9 32.28	-1.72	30.56	24 52.61				
	3046	+ 30 41	N	<i>d</i> <i>c + 1.5</i>	50 5.44	-1.76	3.68	N	<i>d</i> <i>c - 1.6</i>	14 58.03	-1.72	56.31	52.63				
	3056	+ 32 52	N	<i>b - 5.2</i> <i>a + 8.2</i>	51 34.79	-1.78	33.01	N	<i>b - 0.9</i> <i>a - 1.4</i>	16 27.41	-1.72	25.69	52.68				
	3068	+ 32 43	N	<i>s</i> <i>Q - 1.64</i>	53 26.96	-1.78	25.18	N	<i>s</i> <i>Q - 1.66</i>	18 19.50	-1.72	17.78	52.60				
	2970	+ 12 32	S		39 44.22	-1.70	42.52	S		4 36.91	-1.73	35.18	52.66	<i>m s</i> 24 52.667			
	2977	+ 12 59	S		41 26.59	-1.70	24.89	S		6 19.29	-1.73	17.56	52.67				
	3017	+ 20 25	S		46 26.73	-1.71	25.02	S		11 19.49	-1.72	17.77	52.75				
	3031	+ 14 38	S		48 23.23	-1.70	21.53	S		13 16.00	-1.73	14.27	52.74				
Feb. 14	2841	+ 26 35	N	<i>I. P. W.</i>	8 21 57.67	+1.46	59.13	N	<i>I. P. W.</i>	8 46 49.88	+1.75	51.63	24 52.50				
	2860	+ 36 50	N	<i>d</i> <i>c - 4.5</i>	25 1.16	+1.47	2.63	N	<i>d</i> <i>c - 2.0</i>	49 53.42	+1.72	55.14	52.51				
	2871	+ 36 49	N	<i>b - 3.2</i> <i>a - 9.3</i>	26 22.63	+1.47	24.10	N	<i>b + 5.2</i> <i>a + 5.6</i>	51 14.88	+1.72	16.60	52.50				
	2905	+ 32 56	N	<i>s</i> <i>Q + 1.63</i>	31 24.28	+1.48	25.76	N	<i>s</i> <i>Q + 1.67</i>	56 16.43	+1.74	18.17	52.41				
	2888	+ 15 43	S		28 43.64	+1.43	45.07	S		53 35.77	+1.77	37.54	52.47	<i>m s</i> 24 52.479			
	2922	+ 19 57	S		32 54.01	+1.43	55.44	S		57 46.13	+1.76	47.89	52.45				
	2925	+ 20 0	S		33 23.18	+1.43	24.61	S		58 15.41	+1.76	17.17	52.56				
	2937	+ 21 53	S		35 40.63	+1.44	42.07	S		9 0 32.74	+1.76	34.50	52.43				
Feb. 14	3000	+ 28 42	N	<i>I. P. W.</i>	8 44 39.40	-1.80	37.60	N	<i>I. P. W.</i>	9 9 31.76	-1.60	30.16	24 52.56				
	3056	+ 32 52	N	<i>d</i> <i>c - 4.5</i>	51 34.47	-1.79	32.68	N	<i>d</i> <i>c - 2.0</i>	16 26.80	-1.60	25.20	52.52				
	3068	+ 32 43	N	<i>b - 3.2</i> <i>a - 9.3</i>	53 26.57	-1.79	24.78	N	<i>b + 5.2</i> <i>a + 5.6</i>	18 18.91	-1.60	17.31	52.53				
	2970	+ 12 32	S	<i>s</i> <i>Q - 1.63</i>	39 44.03	-1.84	42.19	S	<i>s</i> <i>Q - 1.67</i>	4 36.30	-1.57	34.73	52.54				
	2977	+ 12 59	S		41 26.41	-1.84	24.57	S		6 18.65	-1.57	17.08	52.51	<i>m s</i> 24 52.529			
	3017	+ 20 25	S		46 26.58	-1.83	24.75	S		11 18.88	-1.59	17.29	52.54				
	3031	+ 14 38	S		48 23.11	-1.83	21.28	S		13 15.35	-1.57	13.78	52.50				

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ : AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^{\circ}.004$ $S_N - S_S = - 0^{\circ}.001$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 8	3751	+ 26 8	N	<i>I. P. E.</i>	10 25 24.36	+ 1.71	26.07	N	<i>I. P. E.</i>	10 50 17.44	+ 1.60	19.04	24 52.97			
	3757	+ 41 3	N	<i>c + 0.5</i> <i>d</i>	28 5.92	+ 1.64	7.56	N	<i>c - 0.9</i> <i>d</i>	52 58.83	+ 1.60	60.43	52.87			
	3765	+ 39 50	N	<i>b + 3.4</i> <i>a + 10.4</i>	29 28.05	+ 1.65	29.70	N	<i>b - 1.8</i> <i>a - 0.9</i>	54 20.97	+ 1.60	22.57	52.87			
	3784	+ 38 52	N	<i>s</i> <i>Q + 1.63</i>	33 11.91	+ 1.65	13.56	N	<i>s</i> <i>Q + 1.67</i>	58 4.85	+ 1.60	6.45	52.89			
	3776	+ 20 48	S		31 15.82	+ 1.73	17.55	S		56 8.98	+ 1.61	10.59	53.04	<i>m s</i> 24 52.957	0.068	
	3795	+ 2 31	S		35 45.34	+ 1.79	47.13	S		11 038.59	+ 1.60	40.19	53.06			
	3798	+ 2 35	S		36 6.91	+ 1.79	8.70	S		1 0.10	+ 1.60	1.70	53.00			
Feb. 8	3851	+ 32 11	N	<i>I. P. E.</i>	10 47 10.62	- 1.58	9.04	N	<i>I. P. E.</i>	11 12 3.72	- 1.74	1.98	24 52.94			
	3856	+ 38 50	N	<i>c + 0.5</i> <i>d</i>	47 59.42	- 1.61	57.81	N	<i>c - 0.9</i> <i>d</i>	12 52.54	- 1.74	50.80	52.99			
	3868	+ 44 7	N	<i>b + 3.4</i> <i>a + 10.4</i>	51 38.50	- 1.63	36.87	N	<i>b - 1.8</i> <i>a - 0.9</i>	16 31.60	- 1.74	29.86	52.99			
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.63</i>	57 60.21	- 1.61	58.60	N	<i>s</i> <i>Q - 1.67</i>	22 53.26	- 1.74	51.52	52.92			
	3831	+ 20 46	S		42 46.21	- 1.53	44.68	S		7 39.49	- 1.73	37.76	53.08	<i>m s</i> 24 52.992	0.068	
	3892	+ 9 18	S		55 28.56	- 1.48	27.08	S		20 21.85	- 1.74	20.11	53.03			
Feb. 10	3751	+ 26 8	N	<i>I. P. E.</i>	10 25 32.81	+ 1.24	34.05	N	<i>I. P. E.</i>	10 50 25.35	+ 1.57	26.92	24 52.87			
	3757	+ 41 3	N	<i>c - 9.3</i> <i>d</i>	28 14.34	+ 1.14	15.48	N	<i>c - 1.2</i> <i>d</i>	53 6.93	+ 1.52	8.45	52.97			
	3765	+ 39 50	N	<i>b - 6.2</i> <i>a + 2.8</i>	29 36.47	+ 1.17	37.64	N	<i>b - 2.7</i> <i>a + 3.7</i>	54 29.07	+ 1.54	30.61	52.97			
	3784	+ 38 52	N	<i>s</i> <i>Q + 1.63</i>	33 20.35	+ 1.17	21.52	N	<i>s</i> <i>Q + 1.67</i>	58 12.91	+ 1.54	14.45	52.93			
	3737	+ 6 28	S		24 0.50	+ 1.30	1.80	S		48 53.15	+ 1.61	54.76	52.96	<i>m s</i> 24 52.953	0.069	
	3776	+ 20 48	S		31 24.31	+ 1.26	25.57	S		56 16.97	+ 1.59	18.56	52.99			
	3795	+ 2 31	S		35 53.84	+ 1.31	55.15	S		11 046.49	+ 1.61	48.10	52.95			
	3798	+ 2 35	S		36 15.40	+ 1.31	16.71	S		1 8.08	+ 1.61	9.69	52.98			
																24 52.881

NOTE.— $1^d = 0^{\circ}.0225$ . \* Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*CALCUTTA (E) Lat.  $22^\circ 33'$ , Long.  $5^h 53^m 36^s$ ; AND FYZABAD (W) Lat.  $26^\circ 47'$ , Long.  $5^h 28^m 43^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.004$ $S_N - S_S = - 0^s.001$	$\delta L_N + \rho$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 10	3851	+ 32 11	N	<i>I. P. E.</i>	10 47 19.17	-2.05	17.12	N	<i>I. P. E.</i>	11 12 11.75	-1.78	9.97	24 52.85				
	3856	+ 38 50	N	<i>c - 9.3</i> <i>d</i>	48 7.98	-2.09	5.89	N	<i>c - 1.2</i> <i>d</i>	12 60.59	-1.80	58.79	52.90				
	3868	+ 44 7	N	<i>b - 6.2</i> <i>a + 2.8</i>	51 47.12	-2.13	44.99	N	<i>b - 2.7</i> <i>a + 3.7</i>	16 39.68	-1.82	37.86	52.87				
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.63</i>	58 8.81	-2.09	6.72	N	<i>s</i> <i>Q - 1.67</i>	22 61.34	-1.80	59.54	52.82				
	3831	+ 20 46	S		42 54.83	-2.00	52.83	S		7 47.45	-1.75	45.70	52.87	<i>m s</i> 24 52.862	-	0.069	
	3842	+ 23 44	S		44 21.49	-2.01	19.48	S		9 14.05	-1.77	12.28	52.80				
	3879	+ 2 3	S		53 24.73	-1.95	22.78	S		18 17.41	-1.73	15.68	52.90				
	3892	+ 9 18	S		55 37.14	-1.97	35.17	S		20 29.79	-1.73	28.06	52.89				24 52.790
Feb. 11	3751	+ 26 8	N	<i>I. P. W.</i>	10 25 36.67	+1.39	38.06	N	<i>I. P. W.</i>	10 50 29.30	+1.52	30.82	24 52.76				
	3757	+ 41 3	N	<i>c - 4.1</i> <i>d</i>	28 18.14	+1.30	19.44	N	<i>c - 1.3</i> <i>d</i>	53 10.67	+1.48	12.15	52.71				
	3765	+ 39 50	N	<i>b - 4.9</i> <i>a + 6.4</i>	29 40.27	+1.30	41.57	N	<i>b - 4.4</i> <i>a + 1.2</i>	54 32.89	+1.48	34.37	52.80				
	3784	+ 38 52	N	<i>s</i> <i>Q + 1.62</i>	33 24.14	+1.31	25.45	N	<i>s</i> <i>Q + 1.66</i>	58 16.81	+1.49	18.30	52.85				
	3737	+ 6 28	S		24 4.31	+1.46	5.77	S		48 57.01	+1.55	58.56	52.79	<i>m s</i> 24 52.764	-	0.064	
	3776	+ 20 48	S		31 28.17	+1.40	29.57	S		56 20.75	+1.52	22.27	52.70				
	3795	+ 2 31	S		35 57.63	+1.48	59.11	S		11 050.34	+1.55	51.89	52.78				
	3798	+ 2 35	S		36 19.23	+1.48	20.71	S		1 11.88	+1.55	13.43	52.72				24 52.697
Feb. 11	3851	+ 32 11	N	<i>I. P. W.</i>	10 47 22.98	-1.89	21.09	N	<i>I. P. W.</i>	11 12 15.60	-1.82	13.78	24 52.69				
	3856	+ 38 50	N	<i>c - 4.1</i> <i>d</i>	48 11.72	-1.93	9.79	N	<i>c - 1.3</i> <i>d</i>	13 4.44	-1.83	2.61	52.82				
	3868	+ 44 7	N	<i>b - 4.9</i> <i>a + 6.4</i>	51 50.75	-1.96	48.79	N	<i>b - 4.4</i> <i>a + 1.2</i>	16 43.49	-1.84	41.65	52.86				
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.62</i>	58 12.48	-1.94	10.54	N	<i>s</i> <i>Q - 1.66</i>	23 5.17	-1.84	3.33	52.79				
	3831	+ 20 46	S		42 58.58	-1.84	56.74	S		7 51.20	-1.80	49.40	52.66	<i>m s</i> 24 52.770	-	0.064	
	3842	+ 23 44	S		44 25.19	-1.84	23.35	S		9 17.96	-1.80	16.16	52.81				
	3879	+ 2 3	S		53 28.41	-1.76	26.65	S		18 21.19	-1.77	19.42	52.77				
	3892	+ 9 18	S		55 40.83	-1.79	39.04	S		20 33.58	-1.78	31.80	52.76				24 52.703

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND FYZABAD (W) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> .004 S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> .001	δL <sub>N</sub> + ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 13	8751	+ 26 8	N	<i>I. P. E.</i>	10 25 43.19	+ 1.54	44.73	N	<i>I. P. E.</i>	10 50 35.93	+ 1.60	37.53	24 52.80				
	8757	+ 41 3	N	<i>c + 1.5</i> <i>d</i>	28 24.67	+ 1.45	26.12	N	<i>c - 1.6</i> <i>d</i>	53 17.34	+ 1.59	18.93	52.81				
	8765	+ 39 50	N	<i>b - 5.2</i> <i>a + 8.2</i>	29 46.77	+ 1.46	48.23	N	<i>b - 0.9</i> <i>a - 1.4</i>	54 39.52	+ 1.59	41.11	52.88				
	8784	+ 38 52	N	<i>s</i> <i>Q + 1.64</i>	33 30.68	+ 1.47	32.15	N	<i>s</i> <i>Q + 1.66</i>	58 23.42	+ 1.59	25.01	52.86				
	8737	+ 6 28	S		24 10.83	+ 1.61	12.44	S		49 3.74	+ 1.59	5.33	52.89	<i>m s</i> 24 52.864	0.057	0.003	24 52.804
	8776	+ 20 48	S		31 34.62	+ 1.57	36.19	S		56 27.51	+ 1.60	29.11	52.92				
	8705	+ 2 31	S		36 4.17	+ 1.62	5.79	S		11 057.10	+ 1.59	58.69	52.90				
	8798	+ 2 35	S		36 25.76	+ 1.62	27.38	S		1 18.64	+ 1.59	20.23	52.85				
Feb. 13	8851	+ 32 11	N	<i>I. P. E.</i>	10 47 29.54	- 1.78	27.76	N	<i>I. P. E.</i>	11 12 22.31	- 1.72	20.59	24 52.83				
	8856	+ 38 50	N	<i>c + 1.5</i> <i>d</i>	48 18.38	- 1.81	16.57	N	<i>c - 1.6</i> <i>d</i>	13 11.02	- 1.73	9.29	52.72				
	8868	+ 44 7	N	<i>b - 5.2</i> <i>a + 8.2</i>	51 57.46	- 1.84	55.62	N	<i>b - 0.9</i> <i>a - 1.4</i>	16 50.17	- 1.73	48.44	52.82				
	8905	+ 39 59	N	<i>s</i> <i>Q - 1.64</i>	58 19.17	- 1.82	17.35	N	<i>s</i> <i>Q - 1.66</i>	23 11.79	- 1.73	10.06	52.71				
	8831	+ 20 46	S		43 5.14	- 1.71	3.43	S		7 58.05	- 1.72	56.33	52.90	<i>m s</i> 24 52.814	0.057	0.003	24 52.754
	8842	+ 23 44	S		44 31.87	- 1.73	30.14	S		9 24.66	- 1.72	22.94	52.80				
	8879	+ 2 3	S		53 35.05	- 1.66	33.39	S		18 27.96	- 1.73	26.23	52.84				
	8892	+ 9 18	S		55 47.47	- 1.68	45.79	S		20 40.41	- 1.73	38.68	52.89				

NOTE.— $1^d = 0^{\circ}.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ : AND FYZABAD (W) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^{\circ} 004$ $S_N - S_S = - 0^{\circ} 001$
	B.A.C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 14	3751	+ 26 8	N	<i>I. P. W.</i>	10 25 46.59	+ 1.45	48.04	N	<i>I. P. W.</i>	10 50 38.96	+ 1.75	40.71	24 52.67			
	3757	+ 41 3	N	<i>d</i>	28 28.05	+ 1.49	29.54	N	<i>d</i>	53 20.40	+ 1.72	22.12	52.58			
	3765	+ 39 50	N	<i>c - 4.5</i> <i>b - 3.2</i> <i>a - 9.3</i>	29 50.22	+ 1.49	51.71	N	<i>c - 2.0</i> <i>b + 5.2</i> <i>a + 5.6</i>	54 42.58	+ 1.72	44.30	52.59			
	3784	+ 38 52	N	<i>s</i> <i>Q + 1.63</i>	33 34.04	+ 1.49	35.53	N	<i>s</i> <i>Q + 1.67</i>	58 26.46	+ 1.73	28.19	52.66			
	3737	+ 6 28	S		24 14.41	+ 1.40	15.81	S		49 6.73	+ 1.77	8.50	52.69	<i>m s</i> 24 52.648	- 0.056	- 0.003
	3776	+ 20 48	S		31 38.13	+ 1.43	39.56	S		56 30.49	+ 1.75	32.24	52.68			
	3795	+ 2 31	S		36 7.82	+ 1.39	9.21	S		11 1 0.08	+ 1.78	1.86	52.65			
	3798	+ 2 35	S		36 29.40	+ 1.39	30.79	S		1 21.67	+ 1.78	23.45	52.66			
Feb. 14	3851	+ 32 11	N	<i>I. P. W.</i>	10 47 32.86	- 1.79	31.07	N	<i>I. P. W.</i>	11 12 25.38	- 1.59	23.79	24 52.72			
	3856	+ 38 50	N	<i>d</i>	48 21.59	- 1.77	19.82	N	<i>d</i>	13 14.19	- 1.61	12.58	52.76			
	3868	+ 44 7	N	<i>c - 4.5</i> <i>b - 3.2</i> <i>a - 9.3</i>	51 60.56	- 1.75	58.81	N	<i>c - 2.0</i> <i>b + 5.2</i> <i>a + 5.6</i>	16 53.20	- 1.62	51.58	52.77			
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.63</i>	58 22.32	- 1.77	20.55	N	<i>s</i> <i>Q - 1.67</i>	23 14.88	- 1.62	13.26	52.71			
	3831	+ 20 46	S		43 8.62	- 1.83	6.79	S		7 61.03	- 1.59	59.44	52.65	<i>m s</i> 24 52.721	- 0.056	- 0.003
	3842	+ 23 44	S		44 35.31	- 1.82	33.49	S		9 27.72	- 1.58	26.14	52.65			
	3879	+ 2 3	S		53 38.54	- 1.87	36.67	S		18 30.98	- 1.56	29.42	52.75			
	3892	+ 9 18	S		55 50.96	- 1.85	49.11	S		20 43.44	- 1.57	41.87	52.76			
																24 52.662

NOTE.—1<sup>d</sup> = 0<sup>o</sup> 0225. Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .008	M <sub>N</sub>
	B.A.O. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 22	3416	+ 32 30	N	<i>I. P. W.</i>	9 54 19.75	+ 1.43	21.18	N	<i>I. P. W.</i>	9 54 11.95	+ 1.50	13.45	- 0 7.73				
	3423	+ 22 31	N	<i>d</i>	56 21.15	+ 1.54	22.69	N	<i>d</i>	56 13.20	+ 1.69	14.89	7.80				
	3439	+ 35 34	N	<i>c - 2.7</i> <i>b - 0.9</i> <i>a + 22.8</i>	58 59.24	+ 1.40	60.64	N	<i>c - 1.3</i> <i>b + 0.8</i> <i>a + 42.2</i>	58 51.47	+ 1.42	52.89	7.75				
	3446	+ 35 49	N	<i>s</i>	10 0 35.56	+ 1.39	36.95	N	<i>s</i>	10 0 27.78	+ 1.41	29.19	7.76				
	3456	+ 32 11	N	<i>Q + 1.63</i>	1 34.13	+ 1.44	35.57	N	<i>Q + 1.69</i>	1 26.36	+ 1.50	27.86	7.71				
	3423	+ 22 31	S		9 56 21.26	+ 1.54	22.80	S		9 56 13.35	+ 1.69	15.04	7.76				
	3463	+ 6 45	S		10 3 10.49	+ 1.69	12.18	S		10 3 2.48	+ 1.95	4.43	7.75				
	3469	+ 16 17	S		4 26.74	+ 1.61	28.35	S		4 18.79	+ 1.80	20.59	7.76				
	3483	+ 5 12	S		6 46.50	+ 1.70	48.20	S		6 38.40	+ 1.97	40.37	7.83				
				Mean, T <sub>E</sub>	10 0 17												
Feb. 22	3511	+ 23 42	N	<i>I. P. W.</i>	10 10 55.26	- 1.73	53.53	N	<i>I. P. W.</i>	10 10 47.56	- 1.71	45.85	- 0 7.68				
	3548	+ 34 19	N	<i>d</i>	17 31.94	- 1.85	30.09	N	<i>d</i>	17 24.41	- 1.93	22.48	7.61				
	3560	+ 34 23	N	<i>c - 2.7</i> <i>b - 0.9</i> <i>a + 22.8</i>	19 19.41	- 1.85	17.56	N	<i>c - 1.3</i> <i>b + 0.8</i> <i>a + 42.2</i>	19 11.81	- 1.93	9.88	7.68				
	3572	+ 37 18	N	<i>s</i>	21 14.09	- 1.89	12.20	N	<i>s</i>	21 6.50	- 2.00	4.50	7.70				
	3511	+ 23 42	S	<i>Q - 1.63</i>	10 55.16	- 1.73	53.43	S	<i>Q - 1.69</i>	10 47.45	- 1.71	45.74	7.69				
	3522	+ 20 4	S		13 28.90	- 1.69	27.21	S		13 21.12	- 1.65	19.47	7.74				
	3529	+ 7 1	S		14 31.54	- 1.57	29.97	S		14 23.69	- 1.43	22.26	7.71				
	3538	+ 9 33	S		16 10.68	- 1.59	9.09	S		16 2.81	- 1.47	1.34	7.75				
	3579	+ 14 56	S		22 39.99	- 1.64	38.35	S		22 32.23	- 1.56	30.67	7.68				
				Mean, T <sub>E</sub>	10 16 18												
Feb. 23	3416	+ 32 30	N	<i>I. P. E.</i>	9 54 18.49	+ 1.55	20.04	N	<i>I. P. E.</i>	9 54 7.85	+ 1.63	9.48	- 0 10.56				
	3423	+ 22 31	N	<i>d</i>	56 20.02	+ 1.61	21.63	N	<i>d</i>	56 9.32	+ 1.64	10.96	10.67				
	3439	+ 35 34	N	<i>c + 2.0</i> <i>b - 2.9</i> <i>a + 10.1</i>	58 58.03	+ 1.55	59.58	N	<i>c - 0.9</i> <i>b - 1.5</i> <i>a + 2.2</i>	58 47.23	+ 1.63	48.86	10.72				
	3446	+ 35 49	N	<i>s</i>	10 0 34.27	+ 1.55	35.82	N	<i>s</i>	10 0 23.59	+ 1.63	25.22	10.60				
	3456	+ 32 11	N	<i>Q + 1.63</i>	1 32.93	+ 1.55	34.48	N	<i>Q + 1.70</i>	1 22.23	+ 1.63	23.86	10.62				
	3423	+ 22 31	S		9 56 19.97	+ 1.61	21.58	S		9 56 9.35	+ 1.64	10.99	10.59				
	3463	+ 6 45	S		10 3 9.36	+ 1.68	11.04	S		10 2 58.78	+ 1.66	60.44	10.60				
	3469	+ 16 17	S		4 25.63	+ 1.64	27.27	S		4 14.92	+ 1.66	16.58	10.69				
	3483	+ 5 12	S		6 45.38	+ 1.69	47.07	S		6 34.73	+ 1.67	36.40	10.67				
				Mean, T <sub>E</sub>	10 0 16												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation with all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .CALCUTTA (E) Lat.  $22^{\circ} 33'$ , Long.  $5^h 53^m 36^s$ ; AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^h 19^m 55^s$ .

CALCUTTA (E) Lat. 22° 38', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> ; AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 68 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .008	M <sub>N</sub>
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 23	3511	+ 23 42	N	<i>I. P. E.</i>	10 10 54.08	-1.66	52.42	N	<i>I. P. E.</i>	10 10 43.60	-1.76	41.84	-0 10.58				
	3548	+ 34 19	N	<i>d</i>	17 30.97	-1.72	29.25	N	<i>d</i>	17 20.29	-1.77	18.52	10.73				
	3560	+ 34 23	N	<i>a + 2.0</i> <i>b - 2.9</i> <i>a + 10.1</i>	19 18.28	-1.72	16.56	N	<i>a - 0.9</i> <i>b - 1.5</i> <i>a + 2.2</i>	19 7.64	-1.77	5.87	10.69				
	3572	+ 37 18	N	<i>s</i>	21 12.92	-1.72	11.20	N	<i>s</i>	21 2.30	-1.79	0.51	10.69				
	3511	+ 23 42	S	<i>Q - 1.63</i>	10 54.05	-1.66	52.39	S	<i>Q - 1.70</i>	10 43.57	-1.76	41.81	10.58				
	3522	+ 20 4	S		13 27.73	-1.64	26.09	S		13 17.24	-1.76	15.48	10.61	<i>m s</i>	-0 10.629		
	3529	+ 7 1	S		14 30.45	-1.58	28.87	S		14 20.04	-1.74	18.30	10.57		+	0.097	
	3538	+ 9 33	S		16 9.59	-1.59	8.00	S		15 59.15	-1.74	57.41	10.59			0.003	
	3579	+ 14 56	S		22 38.88	-1.62	37.26	S		22 28.38	-1.74	26.64	10.62			-0 10.535	
				Mean, T <sub>E</sub>	10 16 17												
Feb. 24	3416	+ 32 30	N	<i>I. P. W.</i>	9 54 17.73	+1.32	19.05	N	<i>I. P. W.</i>	9 54 3.77	+1.57	5.34	-0 13.71				
	3423	+ 22 31	N	<i>d</i>	56 19.12	+1.43	20.55	N	<i>d</i>	56 5.14	+1.71	6.85	13.70				
	3439	+ 35 34	N	<i>a - 3.8</i> <i>b - 5.1</i> <i>a + 19.1</i>	58 57.23	+1.28	58.51	N	<i>a - 1.1</i> <i>b - 0.7</i> <i>a + 29.6</i>	58 43.19	+1.53	44.72	13.79				
	3446	+ 35 49	N	<i>s</i>	10 0 33.57	+1.27	34.84	N	<i>s</i>	10 0 19.56	+1.52	21.08	13.76				
	3456	+ 32 11	N	<i>Q + 1.64</i>	1 32.15	+1.32	33.47	N	<i>Q + 1.75</i>	1 18.06	+1.58	19.64	13.83	<i>m s</i>	-0 13.771		
	3423	+ 22 31	S		9 56 19.19	+1.43	20.62	S		9 56 5.16	+1.71	6.87	13.75		+	0.097	
	3463	+ 6 45	S		10 3 8.51	+1.56	10.07	S		10 2 54.33	+1.90	56.23	13.84			0.003	
	3469	+ 16 17	S		4 24.72	+1.48	26.20	S		4 10.65	+1.78	12.43	13.77			-0 13.676	
	3483	+ 5 12	S		6 44.48	+1.57	46.05	S		6 30.34	+1.92	32.26	13.79				
				Mean, T <sub>E</sub>	10 0 15												
Feb. 24	3548	+ 34 19	N	<i>I. P. W.</i>	10 17 30.04	-1.99	28.05	N	<i>I. P. W.</i>	10 17 16.14	-1.96	14.18	-0 13.87				
	3560	+ 34 23	N	<i>d</i>	19 17.43	-1.99	15.44	N	<i>d</i>	19 3.46	-1.96	1.50	13.94				
	3572	+ 37 18	N	<i>a - 3.8</i> <i>b - 5.1</i> <i>a + 19.1</i>	21 12.17	-2.03	10.14	N	<i>a - 1.1</i> <i>b - 0.7</i> <i>a + 29.6</i>	20 58.16	-2.00	56.16	13.98				
	3522	+ 20 4	S	<i>s</i>	13 26.90	-1.83	25.07	S	<i>s</i>	13 12.92	-1.76	11.16	13.91				
	3529	+ 7 1	S	<i>Q - 1.64</i>	14 29.58	-1.72	27.86	S	<i>Q - 1.75</i>	14 15.56	-1.60	13.96	13.90	<i>m s</i>	-0 13.910		
	3538	+ 9 33	S		16 8.71	-1.74	6.97	S		15 54.76	-1.64	53.12	13.85		+	0.097	
	3579	+ 14 56	S		22 38.03	-1.79	36.24	S		22 24.02	-1.70	22.32	13.92			0.003	
				Mean, T <sub>E</sub>	10 17 49											-0 13.816	

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = +0^s.013$ $S_N - S_S = +0^s.008$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1888					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Feb. 28	3416	+ 32 30	N	<i>I. P. E.</i>	9 54 11.48	+1.95	13.43	N	<i>I. P. E.</i>	9 53 42.54	+1.56	44.10	-0 29.33			
	3423	+ 22 31	N	<i>c + 2.8</i>	56 12.97	+1.93	14.90	N	<i>c - 1.5</i>	55 43.85	+1.68	45.53	29.37			
	3439	+ 35 34	N	<i>b + 9.4</i> <i>a + 0.7</i>	58 50.96	+1.96	52.92	N	<i>b + 0.9</i> <i>a + 25.1</i>	58 21.99	+1.52	23.51	29.41			
	3446	+ 35 49	N	<i>s</i> <i>Q + 1.63</i>	10 0 27.23	+1.96	29.19	N	<i>s</i> <i>Q + 1.69</i>	59 58.33	+1.52	59.85	29.34			
	3456	+ 32 11	N		1 25.89	+1.95	27.84	N		10 0 56.97	+1.57	58.54	29.30			
	3423	+ 22 31	S		9 56 13.02	+1.93	14.95	S		9 55 44.01	+1.68	45.69	29.26			
	3463	+ 6 45	S		10 3 2.49	+1.89	4.38	S		10 2 33.17	+1.84	35.01	29.37			
	3469	+ 16 17	S		4 18.66	+1.92	20.58	S		3 49.58	+1.74	51.32	29.26			
	3483	+ 5 12	S		6 38.46	+1.89	40.35	S		6 9.18	+1.85	11.03	29.32			
				Mean, $T_E$	10 0 9											
Feb. 28	3511	+ 23 42	N	<i>I. P. E.</i>	10 10 47.13	-1.33	45.80	N	<i>I. P. E.</i>	10 10 18.01	-1.72	16.29	-0 29.51			
	3548	+ 34 19	N	<i>c + 2.8</i>	17 23.86	-1.30	22.56	N	<i>c - 1.5</i>	16 54.89	-1.84	53.05	29.51			
	3560	+ 34 23	N	<i>b + 9.4</i> <i>a + 0.7</i>	19 11.20	-1.30	9.90	N	<i>b + 0.9</i> <i>a + 25.1</i>	18 42.32	-1.84	40.48	29.42			
	3572	+ 37 18	N	<i>s</i> <i>Q - 1.63</i>	21 5.83	-1.30	4.53	N	<i>s</i> <i>Q - 1.69</i>	20 36.99	-1.88	35.11	29.42			
	3511	+ 23 42	S		10 47.04	-1.33	45.71	S		10 18.16	-1.72	16.44	29.27			
	3522	+ 20 4	S		13 20.71	-1.34	19.37	S		12 51.78	-1.68	50.10	29.27			
	3529	+ 7 1	S		14 23.48	-1.36	22.12	S		13 54.43	-1.54	52.89	29.23			
	3538	+ 9 33	S		16 2.73	-1.36	1.37	S		15 33.50	-1.56	31.94	29.43			
	3579	+ 14 56	S		22 31.93	-1.34	30.59	S		22 2.84	-1.62	1.22	29.37			
				Mean, $T_E$	10 16 10											
Mar. 2	3416	+ 32 30	N	<i>I. P. W.</i>	9 54 9.51	+1.69	11.20	N	<i>I. P. W.</i>	9 53 33.80	+1.52	35.32	-0 35.88			
	3423	+ 22 31	N	<i>c - 2.2</i>	56 10.92	+1.72	12.64	N	<i>c - 0.5</i>	55 35.04	+1.74	36.78	35.86			
	3439	+ 35 34	N	<i>b + 5.9</i> <i>a + 5.8</i>	58 48.92	+1.69	50.61	N	<i>b + 2.0</i> <i>a + 48.7</i>	58 13.31	+1.44	14.75	35.86			
	3446	+ 35 49	N	<i>s</i> <i>Q + 1.63</i>	10 0 25.28	+1.69	26.97	N	<i>s</i> <i>Q + 1.69</i>	59 49.65	+1.44	51.09	35.88			
	3456	+ 32 11	N		1 23.89	+1.69	25.58	N		10 0 48.18	+1.53	49.71	35.87			
	3423	+ 22 31	S		9 56 11.00	+1.72	12.72	S		9 55 35.16	+1.74	36.90	35.82			
	3463	+ 6 45	S		10 3 0.41	+1.75	2.16	S		10 2 24.20	+2.03	26.23	35.93			
	3469	+ 16 17	S		4 16.50	+1.74	18.24	S		3 40.59	+1.87	42.46	35.78			
	3483	+ 5 12	S		6 36.39	+1.75	38.14	S		6 0.16	+2.06	2.22	35.92			
				Mean, $T_E$	10 0 7											

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *et*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

CALCUTTA (E) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.013$ $S_N - S_S = + 0^s.008$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1888		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 2	3511	+ 23 42	N	<i>I. P. W.</i>	10 10 45.00	-1.54	43.46	N	<i>I. P. W.</i>	10 10 9.33	-1.66	7.67	-0 35.79			
	3548	+ 34 19	N	<i>c - 2.2</i>	17 21.69	-1.56	20.13	N	<i>c - 0.5</i>	16 46.29	-1.91	44.38	35.75			
	3560	+ 34 23	N	<i>b + 5.9</i> <i>a + 5.8</i>	19 9.06	-1.56	7.50	N	<i>b + 2.0</i> <i>a + 48.7</i>	18 33.66	-1.91	31.75	35.75			
	3572	+ 37 18	N	<i>s</i> <i>Q - 1.63</i>	21 3.68	-1.57	2.11	N	<i>s</i> <i>Q - 1.69</i>	20 28.38	-1.99	26.39	35.72			
	3511	+ 23 42	S		10 44.90	-1.54	43.36	S		10 9.37	-1.66	7.71	35.65			
	3522	+ 20 4	S		13 18.65	-1.53	17.12	S		12 42.95	-1.59	41.36	35.76			
	3529	+ 7 1	S		14 21.43	-1.51	19.92	S		13 45.46	-1.35	44.11	35.81			
	3538	+ 9 33	S		15 60.53	-1.52	59.01	S		15 24.67	-1.40	23.27	35.74			
	3579	+ 14 56	S		22 29.81	-1.52	28.29	S		21 53.94	-1.49	52.45	35.84			
				Mean, $T_E$	10 16 8											
Mar. 3	3548	+ 34 19	N	<i>I. P. E.</i>	10 17 20.53	-1.35	19.18	N	<i>I. P. E.</i>	10 16 42.21	-1.81	40.40	-0 38.78			
	3560	+ 34 23	N	<i>c + 2.6</i>	19 7.87	-1.35	6.52	N	<i>c - 1.2</i>	18 29.59	-1.81	27.78	38.74			
	3572	+ 37 18	N	<i>b + 9.1</i> <i>a + 5.6</i>	21 2.55	-1.35	1.20	N	<i>b - 0.1</i> <i>a + 19.4</i>	20 24.26	-1.84	22.42	38.78			
	3522	+ 20 4	S	<i>s</i> <i>Q - 1.63</i>	13 17.40	-1.34	16.06	S	<i>s</i> <i>Q - 1.68</i>	12 39.12	-1.68	37.44	38.62			
	3538	+ 9 33	S		15 59.31	-1.34	57.97	S		15 20.91	-1.61	19.30	38.67			
	3579	+ 14 56	S		22 28.57	-1.34	27.23	S		21 50.25	-1.65	48.60	38.63			
				Mean, $T_E$	10 18 13											

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation  $\pi$ 12, all records having been transcribed by the same person.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. 23° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .008	δL <sub>N</sub> - ρ
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 22	3079	+ 24 55	N	<i>I. P. W.</i>	8 55 57.52	+ 1.51	59.03	N	<i>I. P. W.</i>	9 29 34.80	+ 1.65	36.45	33 37.42				
	3088	+ 28 22	N	<i>d</i>	57 15.20	+ 1.48	16.68	N	<i>d</i>	30 52.55	+ 1.58	54.13	37.45				
	3097	+ 38 55	N	<i>c</i> - 2.7 <i>b</i> - 0.9 <i>a</i> + 22.8	59 9.16	+ 1.33	10.49	N	<i>c</i> - 1.3 <i>b</i> + 0.8 <i>a</i> + 42.2	32 46.58	+ 1.34	47.92	37.43				
	3109	+ 30 7	N	<i>s</i> <i>Q</i> + 1.63	9 1 2.34	+ 1.46	3.80	N	<i>s</i> <i>Q</i> + 1.69	34 39.69	+ 1.55	41.24	37.44				
	3117	+ 22 31	N		2 41.58	+ 1.54	43.12	N		36 18.88	+ 1.69	20.57	37.45				
	3117	+ 22 31	S		2 41.56	+ 1.54	43.10	S		36 18.85	+ 1.69	20.54	37.44				
	3123	+ 22 28	S		3 41.11	+ 1.54	42.65	S		37 18.46	+ 1.69	20.15	37.50				
	3129	+ 18 31	S		5 26.13	+ 1.59	27.72	S		39 3.43	+ 1.76	5.19	37.47				
	3138	+ 21 46	S		6 59.91	+ 1.55	61.46	S		40 37.18	+ 1.71	38.89	37.43				
Feb. 22	3246	+ 23 29	N	<i>I. P. W.</i>	9 25 9.51	- 1.73	7.78	N	<i>I. P. W.</i>	9 58 46.96	- 1.71	45.25	33 37.47				
	3255	+ 28 53	N	<i>d</i>	26 34.23	- 1.78	32.45	N	<i>d</i>	10 0 11.60	- 1.81	9.79	37.34				
	3273	+ 31 41	N	<i>c</i> - 2.7 <i>b</i> - 0.9 <i>a</i> + 22.8	29 53.43	- 1.82	51.61	N	<i>c</i> - 1.3 <i>b</i> + 0.8 <i>a</i> + 42.2	3 30.81	- 1.86	28.95	37.34				
	3285	+ 25 12	N	<i>s</i> <i>Q</i> - 1.63	31 15.05	- 1.75	13.30	N	<i>s</i> <i>Q</i> - 1.69	4 52.51	- 1.74	50.77	37.47				
	3246	+ 23 29	S		25 9.60	- 1.73	7.87	S		9 58 46.98	- 1.71	45.27	37.40				
	3299	+ 13 50	S		33 2.78	- 1.63	1.15	S		10 6 40.10	- 1.54	38.56	37.41				
	3312	+ 10 25	S		34 61.04	- 1.60	59.44	S		8 38.32	- 1.48	36.84	37.40				
	3318	+ 20 44	S		36 56.30	- 1.69	54.61	S		10 33.70	- 1.66	32.04	37.43				
Feb. 23	3079	+ 24 55	N	<i>I. P. E.</i>	8 55 56.42	+ 1.60	58.02	N	<i>I. P. E.</i>	9 29 34.04	+ 1.64	35.68	33 37.66				
	3088	+ 28 22	N	<i>d</i>	57 14.14	+ 1.58	15.72	N	<i>d</i>	30 51.72	+ 1.63	53.35	37.63				
	3097	+ 38 55	N	<i>c</i> + 2.0 <i>b</i> - 2.9 <i>a</i> + 10.1	59 8.01	+ 1.53	9.54	N	<i>c</i> - 0.9 <i>b</i> - 1.5 <i>a</i> + 2.2	32 45.54	+ 1.61	47.15	37.61				
	3109	+ 30 7	N	<i>s</i> <i>Q</i> + 1.63	9 1 1.24	+ 1.58	2.82	N	<i>s</i> <i>Q</i> + 1.70	34 38.75	+ 1.63	40.38	37.56				
	3117	+ 22 31	N		2 40.48	+ 1.61	42.09	N		36 18.09	+ 1.64	19.73	37.64				
	3117	+ 22 31	S		2 40.42	+ 1.61	42.03	S		36 17.99	+ 1.64	19.63	37.60				
	3123	+ 22 28	S		3 40.06	+ 1.61	41.67	S		37 17.67	+ 1.64	19.31	37.64				
	3129	+ 18 31	S		5 25.06	+ 1.63	26.69	S		39 2.70	+ 1.64	4.34	37.65				
	3138	+ 21 46	S		6 58.82	+ 1.61	60.43	S		40 36.40	+ 1.64	38.04	37.61				

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\omega$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*CALCUTTA (E) Lat.  $22^\circ 33'$ , Long.  $86^\circ 53' 36''$ ; AND JUBBULPORE (W) Lat.  $23^\circ 10'$ , Long.  $86^\circ 19' 58''$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E. Clock	Corrus. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0.013 S <sub>N</sub> - S <sub>S</sub> = + 0.008	δ L <sub>N</sub> - ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb.23	3246	+ 23 29	N	<i>I. P. E.</i>	9 25 8.49	-1.65	6.84	N	<i>I. P. E.</i>	9 58 46.23	-1.76	44.47	33 37.63				
	3255	+ 28 53	N	<i>c + 2.0</i> <i>d</i>	26 33.07	-1.68	31.39	N	<i>c - 0.9</i> <i>d</i>	10 0 10.81	-1.77	9.03	37.64				
	3273	+ 31 41	N	<i>b - 2.9</i> <i>a + 10.1</i>	29 52.21	-1.70	50.51	N	<i>b - 1.5</i> <i>a + 2.2</i>	3 29.93	-1.77	28.16	37.65				
	3285	+ 25 12	N	<i>s</i> <i>Q - 1.63</i>	31 14.02	-1.66	12.36	N	<i>s</i> <i>Q - 1.70</i>	4 51.80	-1.76	50.04	37.68				
	3228	+ 8 42	S		22 21.06	-1.58	19.48	S		9 55 58.88	-1.74	57.14	37.66	<i>m s</i> 33 37.662	+ 0.025	- 0.003	33 37.684
	3246	+ 23 29	S		25 8.52	-1.65	6.87	S		58 46.25	-1.76	44.49	37.62				
	3299	+ 13 50	S		33 1.81	-1.61	0.20	S		10 6 39.65	-1.74	37.91	37.71				
	3312	+ 10 25	S		34 60.02	-1.59	58.43	S		8 37.90	-1.74	36.16	37.73				
	3318	+ 20 44	S		36 55.24	-1.64	53.60	S		10 33.00	-1.76	31.24	37.64				
Feb.24	3079	+ 24 55	N	<i>I. P. W.</i>	8 55 55.49	+1.40	56.89	N	<i>I. P. W.</i>	9 29 32.83	+1.68	34.51	33 37.62				
	3088	+ 28 22	N	<i>c - 3.8</i> <i>d</i>	57 13.19	+1.36	14.55	N	<i>c - 1.1</i> <i>d</i>	30 50.46	+1.63	52.09	37.54				
	3097	+ 38 55	N	<i>b - 5.1</i> <i>a + 19.1</i>	59 7.17	+1.23	8.40	N	<i>b - 0.7</i> <i>a + 29.6</i>	32 44.44	+1.47	45.91	37.51				
	3100	+ 30 7	N	<i>s</i> <i>Q + 1.64</i>	9 1 0.36	+1.34	1.70	N	<i>s</i> <i>Q + 1.75</i>	34 37.58	+1.61	39.19	37.49				
	3117	+ 22 31	N		2 39.56	+1.43	40.99	N		36 16.81	+1.71	18.52	37.53	<i>m s</i> 33 37.523	+ 0.029	- 0.002	33 37.550
	3138	+ 21 46	N		6 57.90	+1.44	59.34	N		40 35.13	+1.72	36.85	37.51				
	3117	+ 22 31	S		2 39.49	+1.43	40.92	S		36 16.71	+1.71	18.42	37.50				
	3123	+ 22 28	S		3 39.11	+1.43	40.54	S		37 16.42	+1.71	18.13	37.59				
	3129	+ 18 31	S		5 24.15	+1.46	25.61	S		39 1.38	+1.76	3.14	37.53				
	3138	+ 21 46	S		6 57.94	+1.44	59.38	S		40 35.07	+1.72	36.79	37.41				
Feb.24	3246	+ 23 29	N	<i>I. P. W.</i>	9 25 7.54	-1.86	5.68	N	<i>I. P. W.</i>	9 58 44.92	-1.80	43.12	33 37.44				
	3255	+ 28 53	N	<i>c - 3.8</i> <i>d</i>	26 32.20	-1.92	30.28	N	<i>c - 1.1</i> <i>d</i>	10 0 9.67	-1.88	7.79	37.51				
	3273	+ 31 41	N	<i>b - 5.1</i> <i>a + 19.1</i>	29 51.36	-1.95	49.41	N	<i>b - 0.7</i> <i>a + 29.6</i>	3 28.73	-1.92	26.81	37.40				
	3285	+ 25 12	N	<i>s</i> <i>Q - 1.64</i>	31 13.08	-1.88	11.20	N	<i>s</i> <i>Q - 1.75</i>	4 50.55	-1.83	48.72	37.52				
	3228	+ 8 42	S		22 20.06	-1.73	18.33	S		9 55 57.48	-1.63	55.85	37.52	<i>m s</i> 33 37.462	+ 0.029	- 0.003	33 37.488
	3246	+ 23 29	S		25 7.59	-1.86	5.73	S		58 45.04	-1.80	43.24	37.51				
	3299	+ 13 50	S		32 60.89	-1.78	59.11	S		10 6 38.21	-1.69	36.52	37.41				
	3312	+ 10 25	S		34 59.14	-1.75	57.39	S		8 36.42	-1.65	34.77	37.38				
	3318	+ 20 44	S		36 54.27	-1.84	52.43	S		10 31.67	-1.77	29.90	37.47				

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> 013 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> 008	δ L <sub>N</sub> - ρ
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 28	3079	+ 24 55	N	<i>I. P. E.</i>	8 55 49.43	+ 1.93	51.36	N	<i>I. P. E.</i>	9 29 27.37	+ 1.65	29.02	33 37.66				
	3088	+ 28 22	N	<i>c + 2.8</i>	57 7.14	+ 1.94	9.08	N	<i>c - 1.5</i>	30 45.09	+ 1.61	46.70	37.62				
	3097	+ 38 55	N	<i>b + 9.4</i> <i>a + 0.7</i>	59 0.92	+ 1.96	2.88	N	<i>b + 0.9</i> <i>a + 25.1</i>	32 39.04	+ 1.48	40.52	37.64				
	3109	+ 30 7	N	<i>s</i> <i>Q + 1.63</i>	9 0 54.24	+ 1.94	56.18	N	<i>s</i> <i>Q + 1.69</i>	34 32.17	+ 1.59	33.76	37.58				
	3117	+ 22 31	N		2 33.54	+ 1.93	35.47	N		36 11.39	+ 1.68	13.07	37.60				
	3138	+ 21 46	N		6 51.90	+ 1.93	53.83	N		40 29.74	+ 1.69	31.43	37.60				
	3117	+ 22 31	S		2 33.46	+ 1.93	35.39	S		36 11.39	+ 1.68	13.07	37.68				
	3123	+ 22 28	S		3 33.12	+ 1.93	35.05	S		37 11.02	+ 1.68	12.70	37.65				
	3129	+ 18 31	S		4 18.10	+ 1.92	20.02	S		37 56.00	+ 1.72	57.72	37.70				
	3138	+ 21 46	S		6 51.85	+ 1.93	53.78	S		40 29.77	+ 1.69	31.46	37.68				
Feb. 28	3246	+ 23 29	N	<i>I. P. E.</i>	9 25 1.45	- 1.33	0.12	N	<i>I. P. E.</i>	9 58 39.50	- 1.71	37.79	33 37.67				
	3255	+ 28 53	N	<i>c + 2.8</i>	26 26.04	- 1.32	24.72	N	<i>c - 1.5</i>	10 0 4.02	- 1.77	2.25	37.53				
	3273	+ 31 41	N	<i>b + 9.4</i> <i>a + 0.7</i>	29 45.12	- 1.31	43.81	N	<i>b + 0.9</i> <i>a + 25.1</i>	3 23.22	- 1.81	21.41	37.60				
	3285	+ 25 12	N	<i>s</i> <i>Q - 1.63</i>	31 7.00	- 1.33	5.67	N	<i>s</i> <i>Q - 1.69</i>	4 44.99	- 1.73	43.26	37.59				
	3228	+ 8 42	S		22 14.08	- 1.36	12.72	S		9 55 51.99	- 1.56	50.43	37.71				
	3240	+ 23 29	S		25 1.49	- 1.33	0.16	S		58 39.45	- 1.71	37.74	37.58				
	3209	+ 13 50	S		32 54.84	- 1.35	53.49	S		10 6 32.74	- 1.61	31.13	37.64				
	3312	+ 10 25	S		34 53.06	- 1.36	51.70	S		8 30.98	- 1.57	29.41	37.71				
	3318	+ 20 44	S		36 48.20	- 1.33	46.87	S		10 26.20	- 1.68	24.52	37.65				
	Mar. 2	3079	+ 24 55	N	<i>I. P. W.</i>	8 55 47.32	+ 1.72	49.04	N	<i>I. P. W.</i>	9 29 24.89	+ 1.69	26.58	33 37.54			
3097		+ 38 55	N	<i>c - 2.2</i>	58 58.75	+ 1.68	60.43	N	<i>c - 0.5</i>	32 36.58	+ 1.36	37.94	37.51				
3117		+ 22 31	N	<i>b + 5.9</i> <i>a + 5.8</i>	9 2 31.35	+ 1.72	33.07	N	<i>b + 2.0</i> <i>a + 48.7</i>	36 8.88	+ 1.74	10.62	37.55				
3138		+ 21 46	N	<i>s</i> <i>Q + 1.63</i>	6 49.71	+ 1.72	51.43	N	<i>s</i> <i>Q + 1.69</i>	40 27.19	+ 1.76	28.95	37.52				
3117		+ 22 31	S		2 31.25	+ 1.72	32.97	S		36 8.83	+ 1.74	10.57	37.60				
3129		+ 18 31	S		5 15.91	+ 1.73	17.64	S		38 53.38	+ 1.83	55.21	37.57				
3138		+ 21 46	S		6 49.70	+ 1.72	51.42	S		40 27.16	+ 1.76	28.92	37.50				

NOTE.—1<sup>d</sup> = 0<sup>s</sup> 0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.





## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*CALCUTTA (E) Lat.  $22^\circ 33'$ , Long.  $85^\circ 53' 36''$ ; AND JUBBULPORE (W) Lat.  $28^\circ 10'$ , Long.  $85^\circ 19' 58''$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations HN - HS = + 0.013 SN - SS = + 0.008	3 IN + ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 22	3727	+ 28 29	N	<i>I. P. W.</i>	10 12 42.60	+ 1.48	44.08	N	<i>I. P. W.</i>	10 46 19.98	+ 1.58	21.56	33 37.48				
	3735	+ 26 7	N	<i>d</i> <i>c</i> - 2.7	14 39.18	+ 1.50	40.68	N	<i>d</i> <i>c</i> - 1.3	48 16.52	+ 1.63	18.15	37.47				
	3751	+ 26 8	N	<i>b</i> - 0.9 <i>a</i> + 22.8	16 31.72	+ 1.50	33.22	N	<i>b</i> + 0.8 <i>a</i> + 42.2	50 9.12	+ 1.63	10.75	37.53				
	3765	+ 39 50	N	<i>s</i> <i>Q</i> + 1.63	20 35.46	+ 1.32	36.78	N	<i>s</i> <i>Q</i> + 1.69	54 12.96	+ 1.32	14.28	37.50	<i>m s</i> 33 37.490	+ 0.096		
	3776	+ 20 48	N		22 23.24	+ 1.57	24.81	N		56 0.52	+ 1.72	2.24	37.43				
	3708	+ 11 10	S		9 24.50	+ 1.65	26.15	S		43 1.78	+ 1.88	3.66	37.51				
	3720	+ 4 12	S		11 12.27	+ 1.71	13.98	S		44 49.53	+ 1.99	51.52	37.54				
	3776	+ 20 48	S		22 23.14	+ 1.57	24.71	S		56 0.45	+ 1.72	2.17	37.46				
Feb. 22	3851	+ 32 11	N	<i>I. P. W.</i>	10 38 17.93	- 1.82	16.11	N	<i>I. P. W.</i>	11 11 55.59	- 1.88	53.71	33 37.60				
	3856	+ 38 50	N	<i>d</i> <i>c</i> - 2.7	39 6.82	- 1.92	4.90	N	<i>d</i> <i>c</i> - 1.3	12 44.47	- 2.04	42.43	37.53				
	3868	+ 44 7	N	<i>b</i> - 0.9 <i>a</i> + 22.8	42 45.98	- 2.00	43.98	N	<i>b</i> + 0.8 <i>a</i> + 42.2	16 23.71	- 2.18	21.53	37.55				
	3905	+ 39 59	N	<i>s</i> <i>Q</i> - 1.63	49 7.58	- 1.94	5.64	N	<i>s</i> <i>Q</i> + 1.69	22 45.26	- 2.07	43.19	37.55	<i>m s</i> 33 37.548	+ 0.096		
	3877	+ 11 11	S		44 10.70	- 1.61	9.09	S		17 48.13	- 1.50	46.63	37.54				
	3886	+ 17 5	S		45 51.61	- 1.66	49.95	S		19 29.07	- 1.59	27.48	37.53				
	3894 <sub>1</sub>	+ 3 40	S		47 11.21	- 1.54	9.67	S		20 48.58	- 1.38	47.20	37.53				
	3915	+ 19 3	S		50 43.98	- 1.68	42.30	S		24 21.47	- 1.62	19.85	37.55				
Feb. 23	3727	+ 28 29	N	<i>I. P. E.</i>	10 12 38.31	+ 1.58	39.89	N	<i>I. P. E.</i>	10 46 15.90	+ 1.63	17.53	33 37.64				
	3735	+ 26 7	N	<i>d</i> <i>c</i> + 2.0	14 34.90	+ 1.59	36.49	N	<i>d</i> <i>c</i> - 0.9	48 12.47	+ 1.64	14.11	37.62				
	3751	+ 26 8	N	<i>b</i> - 2.9 <i>a</i> + 10.1	16 27.43	+ 1.59	29.02	N	<i>b</i> - 1.5 <i>a</i> + 2.2	50 5.07	+ 1.64	6.71	37.69				
	3765	+ 39 50	N	<i>s</i> <i>Q</i> + 1.63	20 31.08	+ 1.52	32.60	N	<i>s</i> <i>Q</i> + 1.70	54 8.62	+ 1.61	10.23	37.63	<i>m s</i> 33 37.671	+ 0.097		
	3776	+ 20 48	N		22 18.94	+ 1.62	20.56	N		55 56.63	+ 1.64	58.27	37.71				
	3708	+ 11 10	S		9 20.29	+ 1.66	21.95	S		42 58.03	+ 1.66	59.69	37.74				
	3720	+ 4 12	S		11 8.07	+ 1.69	9.76	S		44 45.83	+ 1.67	47.50	37.74				
	3776	+ 20 48	S		22 18.89	+ 1.62	20.51	S		55 56.47	+ 1.64	58.11	37.60				

NOTE.— $1^d = 0.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*CALCUTTA (E) *Lat.* 22° 33', *Long.* 5<sup>h</sup> 53<sup>m</sup> 36<sup>s</sup>; AND JUBBULPORE (W) *Lat.* 23° 10', *Long.* 5<sup>h</sup> 19<sup>m</sup> 58<sup>s</sup>.

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations $H_N - H_S = + 0^s.013$ $S_N - S_S = + 0^s.008$	$\delta L_N + \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb.23	3851	+ 32 11	N	<i>I. P. E.</i>	10 38 13.57	-1.71	11.86	N	<i>I. P. E.</i>	11 11 51.47	-1.77	49.70	33 37.84				
	3856	+ 38 50	N	$c + 2.0$	39 2.42	-1.73	0.69	N	$c - 0.9$	12 40.30	-1.79	38.51	37.82				
	3868	+ 44 7	N	$b - 2.9$ $a + 10.1$	42 41.59	-1.77	39.82	N	$b - 1.5$ $a + 2.2$	16 19.36	-1.79	17.57	37.75				
	3905	+ 39 59	N	$s$ $Q - 1.63$	49 3.19	-1.74	1.45	N	$s$ $Q - 1.70$	22 40.93	-1.79	39.14	37.69				
	3877	+ 11 11	S		44 6.47	-1.60	4.87	S		17 44.40	-1.74	42.66	37.79				
	3886	+ 17 5	S		45 47.44	-1.63	45.81	S		19 25.21	-1.75	23.46	37.65	<i>m s</i> 33 37.753	+	0.097	
	3894 <sub>1</sub>	+ 3 40	S		47 6.98	-1.57	5.41	S		20 44.92	-1.73	43.19	37.78				
	3894 <sub>2</sub>	+ 3 40	S		47 8.03	-1.57	6.46	S		20 45.91	-1.73	44.18	37.72				
	3915	+ 19 3	S		50 39.67	-1.63	38.04	S		24 17.54	-1.76	15.78	37.74				
Feb.24	3735	+ 26 7	N	<i>I. P. W.</i>	10 14 30.99	+1.38	32.37	N	<i>I. P. W.</i>	10 48 8.33	+1.66	9.99	33 37.62				
	3751	+ 26 8	N	$c - 3.8$	16 23.56	+1.38	24.94	N	$c - 1.1$	50 0.90	+1.66	2.56	37.62				
	3765	+ 39 50	N	$b - 5.1$ $a + 19.1$	20 27.27	+1.22	28.49	N	$b - 0.7$ $a + 29.6$	54 4.63	+1.45	6.08	37.59				
	3776	+ 20 48	N	$s$ $Q + 1.64$	22 15.01	+1.44	16.45	N	$s$ $Q + 1.75$	55 52.29	+1.73	54.02	37.57	<i>m s</i> 33 37.639	+	0.097	
	3708	+ 11 10	S		9 16.33	+1.53	17.86	S		42 53.75	+1.84	55.59	37.73	<i>m s</i> 33 37.734	+	0.002	
	3720	+ 4 12	S		11 4.12	+1.58	5.70	S		44 41.47	+1.94	43.41	37.71				
	3776	+ 20 48	S		22 14.92	+1.44	16.36	S		55 52.26	+1.73	53.99	37.63				
Feb.24	3851	+ 32 11	N	<i>I. P. W.</i>	10 38 9.77	-1.96	7.81	N	<i>I. P. W.</i>	11 11 47.25	-1.92	45.33	33 37.52				
	3856	+ 38 50	N	$c - 3.8$	38 58.73	-2.04	56.69	N	$c - 1.1$	12 36.15	-2.03	34.12	37.43				
	3868	+ 44 7	N	$b - 5.1$ $a + 19.1$	42 37.92	-2.13	35.79	N	$b - 0.7$ $a + 29.6$	16 15.31	-2.13	13.18	37.39				
	3905	+ 39 59	N	$s$ $Q - 1.64$	48 59.47	-2.06	57.41	N	$s$ $Q - 1.75$	22 36.94	-2.05	34.89	37.48				
	3877	+ 11 11	S		44 2.59	-1.75	0.84	S		17 39.93	-1.66	38.27	37.43	<i>m s</i> 33 37.449	+	0.097	
	3886	+ 17 5	S		45 43.47	-1.81	41.66	S		19 20.84	-1.72	19.12	37.46	<i>m s</i> 33 37.543	+	0.003	
	3894 <sub>1</sub>	+ 3 40	S		47 3.03	-1.70	1.33	S		20 40.40	-1.56	38.84	37.51				
	3894 <sub>2</sub>	+ 3 40	S		47 4.05	-1.70	2.35	S		20 41.39	-1.56	39.83	37.48				
	3915	+ 19 3	S		50 35.85	-1.82	34.03	S		24 13.12	-1.75	11.37	37.34				

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

CALCUTTA (E) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> : AND JUBBULPORE (W) Lat 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.013$ $S_N - S_S = + 0^s.008$	$\delta L_N + \rho$
	B A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Feb. 28	3727	+ 28 29	N	<i>I. P. E.</i>	10 12 12.57	+ 1.94	14.51	N	<i>I. P. E.</i>	10 45 50.59	+ 1.61	52.20	33 37.69				
	3735	+ 26 7	N	<i>c + 2.8</i>	14 9.05	+ 1.94	10.99	N	<i>c - 1.5</i>	47 47.17	+ 1.64	48.81	37.82				
	3751	+ 26 8	N	<i>b + 9.4</i> <i>a + 0.7</i>	16 1.62	+ 1.94	3.56	N	<i>b + 0.9</i> <i>a + 25.1</i>	49 39.74	+ 1.64	41.38	37.82				
	3765	+ 39 50	N	<i>s</i> <i>Q + 1.63</i>	20 5.20	+ 1.96	7.16	N	<i>s</i> <i>Q + 1.69</i>	53 43.51	+ 1.47	44.98	37.82				
	3776	+ 20 48	N		21 53.13	+ 1.93	55.06	N		55 31.20	+ 1.70	32.90	37.84				
	3696	+ 6 58	S		7 2.25	+ 1.90	4.15	S		40 40.15	+ 1.84	41.99	37.84				
	3708	+ 11 10	S		8 54.64	+ 1.90	56.54	S		42 32.45	+ 1.80	34.25	37.71				
	3720	+ 4 12	S		10 42.43	+ 1.89	44.32	S		44 20.26	+ 1.86	22.12	37.80				
	3776	+ 20 48	S		21 53.08	+ 1.93	55.01	S		55 31.18	+ 1.70	32.88	37.87				
Feb. 28	3851	+ 32 11	N	<i>I. P. E.</i>	10 37 47.74	- 1.31	46.43	N	<i>I. P. E.</i>	11 11 26.07	- 1.81	24.26	33 37.83				
	3856	+ 38 50	N	<i>c + 2.8</i>	38 36.50	- 1.30	35.20	N	<i>c - 1.5</i>	12 14.95	- 1.90	13.05	37.85				
	3868	+ 44 7	N	<i>b + 9.4</i> <i>a + 0.7</i>	42 15.56	- 1.28	14.28	N	<i>b + 0.9</i> <i>a + 25.1</i>	15 54.09	- 1.99	52.10	37.82				
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.63</i>	48 37.21	- 1.30	35.91	N	<i>s</i> <i>Q - 1.69</i>	22 15.66	- 1.91	13.75	37.84				
	3877	+ 11 11	S		43 40.79	- 1.36	39.43	S		17 18.83	- 1.58	17.25	37.82				
	3886	+ 17 5	S		45 21.61	- 1.34	20.27	S		18 59.69	- 1.64	58.05	37.78				
	3894 <sub>1</sub>	+ 3 40	S		46 41.32	- 1.36	39.96	S		20 19.27	- 1.51	17.76	37.80				
	3894 <sub>2</sub>	+ 3 40	S		46 42.32	- 1.36	40.96	S		20 20.28	- 1.51	18.77	37.81				
	3915	+ 19 3	S		50 13.92	- 1.34	12.58	S		23 52.02	- 1.66	50.36	37.78				
Mar. 2	3727	+ 28 29	N	<i>I. P. W.</i>	10 12 4.23	+ 1.70	5.93	N	<i>I. P. W.</i>	10 45 41.75	+ 1.67	43.36	33 37.43				
	3735	+ 26 7	N	<i>c - 2.2</i>	14 0.81	+ 1.71	2.52	N	<i>c - 0.5</i>	47 38.34	+ 1.67	40.01	37.49				
	3751	+ 26 8	N	<i>b + 5.9</i> <i>a + 5.8</i>	15 53.43	+ 1.71	55.14	N	<i>b + 2.0</i> <i>a + 48.7</i>	49 30.89	+ 1.67	32.56	37.42				
	3765	+ 39 50	N	<i>s</i> <i>Q + 1.63</i>	19 56.93	+ 1.69	58.62	N	<i>s</i> <i>Q + 1.69</i>	53 34.81	+ 1.33	36.14	37.52				
	3776	+ 20 48	N		21 44.98	+ 1.72	46.70	N		55 22.42	+ 1.78	24.20	37.50				
	3696	+ 6 58	S		6 54.00	+ 1.75	55.75	S		40 31.28	+ 2.03	33.31	37.56				
	3708	+ 11 10	S		8 46.31	+ 1.74	48.05	S		42 23.64	+ 1.95	25.59	37.54				
	3720	+ 4 12	S		10 34.10	+ 1.75	35.85	S		44 11.36	+ 2.08	13.44	37.59				
	3776	+ 20 48	S		21 44.90	+ 1.72	46.62	S		55 22.28	+ 1.78	24.06	37.44				

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*CALCUTTA (E) Lat.  $22^{\circ} 33'$ , Long.  $5^h 53^m 36^s$ : AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^h 19^m 58^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.013$ $S_N - S_S = + 0^s.008$	$\delta L_N + \rho$
	B.A.C. Number	Decli- nation	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 2	3851	+ 32 11	N	<i>I. P. W.</i>	10 37 39.56	-1.57	37.99	N	<i>I. P. W.</i>	11 11 17.48	-1.85	15.63	33 37.64				
	3856	+ 38 50	N	$c - 2.2$	38 28.40	-1.58	26.82	N	$c - 0.5$	12 6.42	-2.02	4.40	37.58				
	3868	+ 44 7	N	$b + 5.9$ $a + 5.8$	42 7.51	-1.60	5.91	N	$b + 2.0$ $a + 48.7$	15 45.68	-2.19	43.49	37.58				
	3905	+ 39 59	N	$s$ $Q - 1.63$	48 29.14	-1.57	27.57	N	$s$ $Q - 1.69$	22 7.16	-2.05	5.11	37.54				
	3877	+ 11 11	S		43 33.50	-1.52	30.98	S		17 10.03	-1.43	8.60	37.62				
	3886	+ 17 5	S		45 13.31	-1.53	11.78	S		18 50.96	-1.52	49.44	37.66				
	3894 <sub>1</sub>	+ 3 40	S		46 33.02	-1.51	31.51	S		20 10.32	-1.29	9.03	37.52				
	3891 <sub>2</sub>	+ 3 40	S		46 34.04	-1.51	32.53	S		20 11.34	-1.29	10.05	37.52				
	3915	+ 19 3	S		50 5.62	-1.53	4.09	S		23 43.27	-1.56	41.71	37.62				
Mar. 3	3765	+ 39 50	N	<i>I. P. E.</i>	10 19 52.52	+1.91	54.43	N	<i>I. P. E.</i>	10 53 30.73	+1.48	32.21	33 37.78				
	3776	+ 20 48	N	$c + 2.6$	21 40.49	+1.91	42.40	N	$c - 1.2$	55 18.45	+1.67	20.12	37.72				
	3696	+ 6 58	S	$b + 9.1$ $a + 5.6$	6 49.57	+1.92	51.49	S	$b - 0.1$ $a + 19.4$	40 27.65	+1.77	29.42	37.93				
	3776	+ 20 48	S	$s$ $Q + 1.63$	21 40.39	+1.91	42.30	S	$s$ $Q + 1.68$	55 18.39	+1.67	20.06	37.76				
Mar. 3	3851	+ 32 11	N	<i>I. P. E.</i>	10 37 35.04	-1.35	33.69	N	<i>I. P. E.</i>	11 11 13.43	-1.79	11.64	33 37.95				
	3856	+ 38 50	N	$c + 2.6$	38 23.83	-1.35	22.48	N	$c - 1.2$	12 2.36	-1.86	0.50	38.02				
	3868	+ 44 7	N	$b + 9.1$ $a + 5.6$	42 2.80	-1.35	1.54	N	$b - 0.1$ $a + 19.4$	15 41.40	-1.94	39.46	37.92				
	3905	+ 39 59	N	$s$ $Q - 1.63$	48 24.54	-1.34	23.20	N	$s$ $Q - 1.68$	22 3.04	-1.88	1.16	37.96				
	3886	+ 17 5	S		45 8.76	-1.35	7.41	S		18 47.09	-1.66	45.43	38.02				
	3894 <sub>1</sub>	+ 3 40	S		46 28.44	-1.34	27.10	S		20 6.63	-1.56	5.07	37.97				
	3915	+ 19 3	S		49 61.11	-1.34	59.77	S		23 39.36	-1.68	37.68	37.91				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) <i>Lat.</i> 26° 47', <i>Long.</i> 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> ; AND JUBBULPORE (W) <i>Lat.</i> 23° 10', <i>Long.</i> 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = +0.034$ $S_N - S_S = +0.037$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883		0			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 14	3727	+ 28 29	N	<i>I. P. E.</i>	10 46 45.01	+1.55	46.56	N	<i>I. P. E.</i>	10 46 20.81	+1.71	22.52	-0 24.04			
	3735	+ 26 7	N	<i>c + 1.6</i> <i>d</i>	48 41.68	+1.53	43.21	N	<i>c + 0.2</i> <i>d</i>	48 17.39	+1.72	19.11	24.10			
	3708	+ 11 10	S	<i>b + 4.2</i> <i>a - 17.9</i>	43 27.28	+1.41	28.69	S	<i>b + 1.1</i> <i>a + 7.6</i>	43 2.84	+1.75	4.59	24.10			
	3768	+ 4 15	S	<i>s</i> <i>Q + 1.39</i>	54 52.05	+1.37	53.42	S	<i>s</i> <i>Q + 1.69</i>	54 27.56	+1.77	29.33	24.09			
				Mean, $T_E$	10 48 27											
Mar. 14	3851	+ 32 12	N	<i>I. P. E.</i>	11 12 20.10	-1.20	18.90	N	<i>I. P. E.</i>	11 11 56.35	-1.68	54.67	-0 24.23			
	3856	+ 38 50	N	<i>c + 1.6</i> <i>d</i>	13 8.83	-1.11	7.72	N	<i>c + 0.2</i> <i>d</i>	12 45.15	-1.71	43.44	24.28			
	3868	+ 44 7	N	<i>b + 4.2</i> <i>a - 17.9</i>	16 47.84	-1.04	46.80	N	<i>b + 1.1</i> <i>a + 7.6</i>	16 24.23	-1.74	22.49	24.31			
	3842	+ 23 44	S	<i>s</i> <i>Q - 1.39</i>	9 22.44	-1.27	21.17	S	<i>s</i> <i>Q - 1.69</i>	8 58.68	-1.66	57.02	24.15			
	3877	+ 11 11	S		18 13.27	-1.37	11.90	S		17 49.35	-1.63	47.72	24.18			
	3886	+ 17 6	S		19 54.04	-1.32	52.72	S		19 30.10	-1.64	28.46	24.26			
				Mean, $T_E$	11 14 58											
Mar. 15	3727	+ 28 29	N	<i>I. P. W.</i>	10 46 51.00	+1.60	52.60	N	<i>I. P. W.</i>	10 46 18.96	+1.64	20.60	-0 32.00			
	3735	+ 26 7	N	<i>c - 0.3</i> <i>d</i>	48 47.68	+1.59	49.27	N	<i>c - 2.5</i> <i>d</i>	48 15.52	+1.64	17.16	32.11			
	3751	+ 26 8	N	<i>b + 8.9</i> <i>a - 6.3</i>	50 40.18	+1.59	41.77	N	<i>b + 0.3</i> <i>a + 5.6</i>	50 8.11	+1.64	9.75	32.02			
	3784	+ 38 52	N	<i>s</i> <i>Q + 1.38</i>	58 27.67	+1.66	29.33	N	<i>s</i> <i>Q + 1.70</i>	57 55.61	+1.60	57.21	32.12			
	3708	+ 11 10	S		43 33.20	+1.53	34.73	S		43 1.05	+1.68	2.73	32.00			
	3720	+ 4 12	S		45 21.03	+1.51	22.54	S		44 48.85	+1.69	50.54	32.00			
	3768	+ 4 15	S		54 57.96	+1.51	59.47	S		54 25.67	+1.69	27.36	32.11			
	3776	+ 20 49	S		56 31.79	+1.56	33.35	S		55 59.57	+1.66	61.23	32.12			
				Mean, $T_E$	10 50 39											

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^{\text{h}} 28^{\text{m}} 42^{\text{s}}$ ; AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^{\text{h}} 19^{\text{m}} 58^{\text{s}}$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W -- E)		Correction for Rate of W Clock	Corrns. for Persl Equations $H_N - H_S = + 0^{\text{h}} 034$ $S_N - S_S = + 0^{\text{h}} 037$	$M_N$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		o /			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.15	3851	+ 32 12	N	<i>I. P. W.</i>	11 12 26.12	-1.13	24.99	N	<i>I. P. W.</i>	11 11 54.60	-1.78	52.82	-0 32.17				
	3856	+ 38 50	N	<i>d</i>	13 14.89	-1.10	13.79	N	<i>d</i>	12 43.44	-1.80	41.64	32.15				
	3868	+ 44 7	N	<i>c - 0.3</i> <i>b + 8.9</i> <i>a - 6.3</i>	16 53.93	-1.06	52.87	N	<i>c - 2.5</i> <i>b + 0.3</i> <i>a + 5.6</i>	16 22.47	-1.83	20.64	32.23				
	3824	+ 15 3	S	<i>s</i>	6 5.24	-1.22	4.02	S	<i>s</i>	5 33.59	-1.73	31.86	32.16				
	3831	+ 20 46	S	<i>Q - 1.38</i>	8 1.80	-1.20	0.60	S	<i>Q - 1.70</i>	7 30.21	-1.74	28.47	32.13				
	3842	+ 23 44	S		9 28.48	-1.18	27.30	S		8 56.88	-1.75	55.13	32.17				
	3877	+ 11 11	S		18 19.22	-1.23	17.99	S		17 47.49	-1.72	45.77	32.22				
	3886	+ 17 6	S		19 60.02	-1.20	58.82	S		19 28.31	-1.74	26.57	32.25				
				Mean, $T_E$	11 13 4												
Mar.16	3727	+ 28 29	N	<i>I. P. E.</i>	10 46 56.98	+1.46	58.44	N	<i>I. P. E.</i>	10 46 17.43	+1.64	19.07	-0 39.37				
	3736	+ 34 39	N	<i>d</i>	49 0.60	+1.46	2.06	N	<i>d</i>	48 21.10	+1.60	22.70	39.36				
	3751	+ 26 8	N	<i>c + 0.7</i> <i>b + 2.3</i> <i>a - 0.9</i>	50 46.13	+1.46	47.59	N	<i>c + 0.6</i> <i>b - 1.1</i> <i>a + 14.9</i>	50 6.59	+1.66	8.25	39.34				
	3765	+ 39 50	N	<i>s</i>	54 49.75	+1.48	51.23	N	<i>s</i>	54 10.32	+1.55	11.87	39.36				
	3784	+ 38 52	N	<i>Q + 1.38</i>	58 33.66	+1.47	35.13	N	<i>Q + 1.69</i>	57 54.12	+1.56	55.68	39.45				
	3708	+ 11 10	S		43 39.08	+1.44	40.52	S		42 59.43	+1.75	61.18	39.34				
	3720	+ 4 12	S		45 26.85	+1.44	28.29	S		44 47.26	+1.79	49.05	39.24				
	3776	+ 20 49	S		56 37.69	+1.46	39.15	S		55 58.06	+1.68	59.74	39.41				
				Mean, $T_E$	10 50 44												
Mar.16	3851	+ 32 12	N	<i>I. P. E.</i>	11 12 31.97	-1.30	30.67	N	<i>I. P. E.</i>	11 11 53.00	-1.76	51.24	-0 39.43				
	3856	+ 38 50	N	<i>d</i>	13 20.74	-1.29	19.45	N	<i>d</i>	12 41.86	-1.82	40.04	39.41				
	3868	+ 44 7	N	<i>c + 0.7</i> <i>b + 2.3</i> <i>a - 0.9</i>	16 59.83	-1.28	58.55	N	<i>c + 0.6</i> <i>b - 1.1</i> <i>a + 14.9</i>	16 20.95	-1.87	19.08	39.47				
	3824	+ 15 3	S	<i>s</i>	6 11.08	-1.31	9.77	S	<i>s</i>	5 32.06	-1.66	30.40	39.37				
	3831	+ 20 46	S	<i>Q - 1.38</i>	8 7.72	-1.30	6.42	S	<i>Q - 1.69</i>	7 28.69	-1.70	26.99	39.43				
	3842	+ 23 44	S		9 34.32	-1.30	33.02	S		8 55.24	-1.71	53.53	39.49				
	3877	+ 11 11	S		18 25.07	-1.32	23.75	S		17 45.95	-1.63	44.32	39.43				
	3886	+ 17 6	S		20 5.81	-1.31	4.50	S		19 26.79	-1.67	25.12	39.38				
				Mean, $T_E$	11 13 9												

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\frac{1}{2}$ , all records having been transcribed by the same person.

TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = +0.034$ $S_N - S_S = +0.037$	$M_N$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 17	3727	+ 28 29	N	<i>I. P. W.</i>	10 47 2.71	+1.38	4.09	N	<i>I. P. W.</i>	10 46 15.33	+1.58	16.91	-0 47.18				
	3736	+ 34 39	N	<i>d</i>	49 6.30	+1.38	7.68	N	<i>d</i>	48 19.07	+1.51	20.58	47.10				
	3751	+ 26 8	N	<i>c + 0.2</i> <i>b - 0.8</i> <i>a - 1.1</i>	50 51.89	+1.38	53.27	N	<i>c - 1.6</i> <i>b - 1.0</i> <i>a + 23.8</i>	50 4.50	+1.61	6.11	47.16				
	3765	+ 39 50	N	<i>s</i>	54 55.47	+1.39	56.86	N	<i>s</i>	54 8.25	+1.43	9.68	47.18				
	3784	+ 38 52	N	<i>Q + 1.39</i>	58 39.23	+1.39	40.62	N	<i>Q + 1.71</i>	57 52.09	+1.44	53.53	47.09				
	3708	+ 11 10	S		43 44.79	+1.36	46.15	S		42 57.22	+1.76	58.98	47.17				
	3720	+ 4 12	S		45 32.59	+1.36	33.95	S		44 44.99	+1.82	46.81	47.14				
	3776	+ 20 49	S		56 43.38	+1.37	44.75	S		55 55.93	+1.67	57.60	47.15				
				Mean, $T_E$	10 50 50												
Mar. 17	3824	+ 15 3	S	<i>I. P. W.</i>	11 6 16.83	-1.42	15.41	S	<i>I. P. W.</i>	11 5 29.72	-1.69	28.03	-0 47.38				
	3831	+ 20 46	S	<i>d</i>	8 13.40	-1.41	11.99	S	<i>d</i>	7 26.41	-1.75	24.66	47.33				
	3842	+ 23 44	S	<i>c + 0.2</i> <i>b - 0.8</i> <i>a - 1.1</i>	9 40.02	-1.41	38.61	S	<i>c - 1.6</i> <i>b - 1.0</i> <i>a + 23.8</i>	8 53.16	-1.78	51.38	47.23				
	3877	+ 11 11	S	<i>s</i>	18 30.72	-1.42	29.30	S	<i>s</i>	17 43.65	-1.66	41.99	47.31				
				<i>Q - 1.39</i>					<i>Q - 1.71</i>								
				Mean, $T_E$	11 10 40												
Mar. 18	3727	+ 28 29	N	<i>I. P. E.</i>	10 47 8.18	+1.32	9.50	N	<i>I. P. E.</i>	10 46 13.11	+1.69	14.80	-0 54.70				
	3736	+ 34 39	N	<i>d</i>	49 11.87	+1.32	13.19	N	<i>d</i>	48 16.79	+1.64	18.43	54.76				
	3751	+ 26 8	N	<i>c + 0.4</i> <i>b + 0.5</i> <i>a + 16.4</i>	50 57.27	+1.32	58.59	N	<i>c + 0.4</i> <i>b + 0.5</i> <i>a + 16.4</i>	50 2.32	+1.71	4.03	54.56				
	3765	+ 39 50	N	<i>s</i>	55 0.98	+1.33	2.31	N	<i>s</i>	54 5.96	+1.59	7.55	54.76				
	3784	+ 38 52	N	<i>Q + 1.38</i>	58 44.84	+1.33	46.17	N	<i>Q + 1.71</i>	57 49.81	+1.60	51.41	54.76				
	3708	+ 11 10	S		43 50.24	+1.31	51.55	S		42 55.18	+1.81	56.99	54.56				
	3720	+ 4 12	S		45 38.01	+1.30	39.31	S		44 42.97	+1.85	44.82	54.49				
	3776	+ 20 49	S		56 48.90	+1.31	50.21	S		55 53.76	+1.75	55.51	54.70				
				Mean, $T_E$	10 50 55												

NOTE.— $1^d = 0.0225$ . Transcribing Equation 337, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .FYZABAD (E) *Lat.* 26° 47', *Long.* 5<sup>h</sup> 25<sup>m</sup> 42<sup>s</sup>: AND JUBBULPORE (W) *Lat.* 23° 10', *Long.* 5<sup>h</sup> 19<sup>m</sup> 58<sup>s</sup>.

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.034$ $S_N - S_S = + 0^s.037$	$M_N$
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.18	3851	+ 32 12	N	<i>I. P. E.</i>	11 12 43.20	-1.43	41.77	N	<i>I. P. E.</i>	11 11 48.72	-1.76	46.96	-0 54.81	<i>m s</i> - 0 54.746	+ 0.011	+	- 0 54.733
	3856	+ 38 50	N	<i>d</i>	13 32.01	-1.43	30.58	N	<i>d</i>	12 37.60	-1.82	35.78	54.80				
	3868	+ 44 7	N	<i>c - 1.3</i> <i>b - 1.1</i> <i>a - 2.9</i>	17 11.12	-1.42	9.70	N	<i>c + 0.4</i> <i>b + 0.5</i> <i>a + 16.4</i>	16 16.77	-1.87	14.90	54.80				
	3824	+ 15 3	S	<i>s</i>	6 22.28	-1.45	20.83	S	<i>s</i>	5 27.76	-1.64	26.12	54.71				
	3831	+ 20 46	S	<i>Q - 1.38</i>	8 18.87	-1.45	17.42	S	<i>Q - 1.71</i>	7 24.42	-1.67	22.75	54.67				
	3842	+ 23 44	S		9 45.56	-1.44	44.12	S		8 51.06	-1.69	49.37	54.75				
	3877	+ 11 11	S		18 36.21	-1.45	34.76	S		17 41.69	-1.61	40.08	54.68				
			Mean, $T_E$	11 12 21													
Mar.19	3727	+ 28 29	N	<i>I. P. W.</i>	10 47 13.87	+1.66	15.53	N	<i>I. P. W.</i>	10 46 11.40	+1.62	13.02	-1 2.51	<i>m s</i> - 1 2.495	+ 0.011	+	- 1 2.483
	3736	+ 34 39	N	<i>d</i>	49 17.53	+1.65	19.18	N	<i>d</i>	48 15.19	+1.55	16.74	2.44				
	3751	+ 26 8	N	<i>c + 1.6</i> <i>b + 8.9</i> <i>a + 5.7</i>	51 3.00	+1.65	4.65	N	<i>c - 0.7</i> <i>b - 0.0</i> <i>a + 23.7</i>	50 0.55	+1.65	2.20	2.45				
	3765	+ 39 50	N	<i>s</i>	55 6.64	+1.65	8.29	N	<i>s</i>	54 4.29	+1.48	5.77	2.52				
	3784	+ 38 52	N	<i>Q + 1.39</i>	58 50.52	+1.66	52.18	N	<i>Q + 1.70</i>	57 48.17	+1.50	49.67	2.51				
	3708	+ 11 10	S		43 55.93	+1.66	57.59	S		42 53.30	+1.79	55.09	2.50				
	3720	+ 4 12	S		45 43.76	+1.67	45.43	S		44 41.04	+1.85	42.89	2.54				
3776	+ 20 49	S		56 54.54	+1.65	56.19	S		55 52.00	+1.70	53.70	2.49					
			Mean, $T_E$	10 51 1													
Mar.19	3851	+ 32 12	N	<i>I. P. W.</i>	11 12 48.97	-1.12	47.85	N	<i>I. P. W.</i>	11 11 47.04	-1.82	45.22	-1 2.63	<i>m s</i> - 1 2.639	+ 0.011	+	- 1 2.626
	3856	+ 38 50	N	<i>d</i>	13 37.77	-1.12	36.65	N	<i>d</i>	12 35.93	-1.90	34.03	2.62				
	3868	+ 44 7	N	<i>c + 1.6</i> <i>b + 8.9</i> <i>a + 5.7</i>	17 16.88	-1.12	15.76	N	<i>c - 0.7</i> <i>b - 0.0</i> <i>a + 23.7</i>	16 15.05	-1.99	13.06	2.70				
	3824	+ 15 3	S	<i>s</i>	6 28.01	-1.12	26.89	S	<i>s</i>	5 25.93	-1.64	24.29	2.60				
	3831	+ 20 46	S	<i>Q - 1.39</i>	8 24.57	-1.13	23.44	S	<i>Q - 1.70</i>	7 22.60	-1.70	20.90	2.54				
	3842	+ 23 44	S		9 51.29	-1.12	50.17	S		8 49.29	-1.73	47.56	2.61				
	3877	+ 11 11	S		18 42.04	-1.12	40.92	S		17 39.76	-1.61	38.15	2.77				
			Mean, $T_E$	11 12 27													

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 29 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .034 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .037	M <sub>N</sub>
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883 Mar.20	3727	+ 28 29	N	<i>I. P. E.</i>	<i>h m s</i> 10 47 19.62	+ 1.38	21.00	N	<i>I. P. E.</i>	<i>h m s</i> 10 46 9.73	+ 1.63	11.36	- 1 9.64	<i>m s</i> - 1 9.630	+ 0.012	+ 0.001	- 1 9.617
	3736	+ 34 39	N	<i>d</i> c - 1.9	49 23.28	+ 1.38	24.66	N	<i>d</i> c + 0.8	48 13.46	+ 1.54	15.00	9.66				
	3751	+ 26 8	N	b + 1.4 a + 1.3	51 8.78	+ 1.38	10.16	N	b - 0.1 a + 31.7	49 58.84	+ 1.67	60.51	9.65				
	3765	+ 39 50	N	<i>s</i> Q + 1.39	55 12.43	+ 1.36	13.79	N	<i>s</i> Q + 1.69	54 2.67	+ 1.44	4.11	9.68				
	3784	+ 38 52	N		58 56.29	+ 1.37	57.66	N		57 46.51	+ 1.46	47.97	9.69				
	3708	+ 11 10	S		44 1.65	+ 1.39	3.04	S		42 51.65	+ 1.86	53.51	9.53				
	3720	+ 4 12	S		45 49.45	+ 1.39	50.84	S		44 39.40	+ 1.94	41.34	9.50				
	3776	+ 20 49	S		57 0.32	+ 1.37	1.69	S		55 50.26	+ 1.74	52.00	9.69				
				Mean, T <sub>E</sub>	10 51 6												
Mar.20	3851	+ 32 12	N	<i>I. P. E.</i>	11 12 54.69	- 1.40	53.29	N	<i>I. P. E.</i>	11 11 45.37	- 1.80	43.57	- 1 9.72	<i>m s</i> - 1 9.674	+ 0.012	+ 0.002	- 1 9.660
	3868	+ 44 7	N	<i>d</i> c - 1.9	17 22.57	- 1.42	21.15	N	<i>d</i> c + 0.8	16 13.44	- 2.02	11.42	9.73				
	3824	+ 15 3	S	b + 1.4 a + 1.3	6 33.66	- 1.39	32.27	S	b - 0.1 a + 31.7	5 24.23	- 1.57	22.66	9.61				
	3831	+ 20 46	S	<i>s</i> Q - 1.39	8 30.33	- 1.41	28.92	S	<i>s</i> Q - 1.69	7 20.92	- 1.64	19.28	9.64				
	3842	+ 23 44	S		9 56.98	- 1.41	55.57	S		8 47.58	- 1.68	45.90	9.67				
	3877	+ 11 11	S		18 47.67	- 1.39	46.28	S		17 38.12	- 1.52	36.60	9.68				
	3886	+ 17 6	S		20 28.48	- 1.39	27.09	S		19 19.01	- 1.59	17.42	9.67				
				Mean, T <sub>E</sub>	11 13 31												

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation  $w/z$ , all records having been transcribed by the same person.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ ; AND JUBBULPORE (W) Lat.  $23^{\circ} 10'$ , Long.  $5^h 19^m 58^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.034$ $S_N - S_S = + 0^s.037$	$\delta L_N - \rho$
			By Heavyside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		o /			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.14	3371	+ 26 33	N	<i>I. P. E.</i>	9 46 27.09	+ 1.54	28.63	N	<i>I. P. E.</i>	9 55 12.00	+ 1.72	13.72	8 45.09				
	3392	+ 32 56	N	<i>c + 1.6</i> <i>d</i>	50 0.11	+ 1.59	1.70	N	<i>c + 0.2</i> <i>d</i>	58 45.10	+ 1.70	46.80	45.10				
	3446	+ 35 49	N	<i>b + 4.2</i> <i>a - 17.9</i>	10 0 52.17	+ 1.63	53.80	N	<i>b + 1.1</i> <i>a + 7.6</i>	10 9 37.18	+ 1.68	38.86	45.06	<i>m s</i>	8 45.118		
	3406	+ 13 0	S	<i>s</i>	9 52 16.25	+ 1.42	17.67	S	<i>s</i>	1 1.14	+ 1.74	2.88	45.21	<i>m s</i>	8 45.118		
	3415	+ 8 36	S	<i>Q + 1.39</i>	54 22.37	+ 1.39	23.76	S	<i>Q + 1.69</i>	3 7.14	+ 1.75	8.89	45.13	<i>m s</i>	8 45.118		
Mar.14	3490	+ 32 3	N	<i>I. P. E.</i>	10 8 46.53	- 1.20	45.33	N	<i>I. P. E.</i>	10 17 32.00	- 1.68	30.32	8 44.99				
	3500	+ 29 54	N	<i>c + 1.6</i> <i>d</i>	9 59.01	- 1.21	57.80	N	<i>c + 0.2</i> <i>d</i>	18 44.44	- 1.67	42.77	44.97				
	3559	+ 36 1	N	<i>b + 4.2</i> <i>a - 17.9</i>	19 23.49	- 1.15	22.34	N	<i>b + 1.1</i> <i>a + 7.6</i>	28 9.09	- 1.70	7.39	45.05	<i>m s</i>	8 45.060		
	3483	+ 5 12	S	<i>s</i>	7 6.44	- 1.41	5.03	S	<i>s</i>	15 51.70	- 1.62	50.08	45.05	<i>m s</i>	8 45.060		
	3522	+ 20 4	S	<i>Q - 1.39</i>	13 45.43	- 1.30	44.13	S	<i>Q - 1.69</i>	22 30.91	- 1.65	29.26	45.13	<i>m s</i>	8 45.060		
	3529	+ 7 1	S		14 48.33	- 1.40	46.93	S		23 33.72	- 1.62	32.10	45.17	<i>m s</i>	8 45.060		
Mar.15	3371	+ 26 33	N	<i>I. P. W.</i>	9 46 33.06	+ 1.59	34.65	N	<i>I. P. W.</i>	9 55 17.67	+ 1.64	19.31	8 44.66				
	3392	+ 32 56	N	<i>c - 0.3</i> <i>d</i>	50 6.12	+ 1.63	7.75	N	<i>c - 2.5</i> <i>d</i>	58 50.92	+ 1.61	52.53	44.78				
	3446	+ 35 49	N	<i>b + 8.9</i> <i>a - 6.3</i>	10 0 58.25	+ 1.64	59.89	N	<i>b + 0.3</i> <i>a + 5.6</i>	10 9 43.04	+ 1.61	44.65	44.76				
	3386	+ 5 30	S	<i>s</i>	9 48 26.26	+ 1.51	27.77	S	<i>s</i>	9 57 10.88	+ 1.69	12.57	44.80	<i>m s</i>	8 44.740		
	3406	+ 13 0	S	<i>Q + 1.38</i>	52 22.23	+ 1.54	23.77	S	<i>Q + 1.70</i>	10 1 6.85	+ 1.67	8.52	44.75	<i>m s</i>	8 44.740		
	3415	+ 8 36	S		54 28.35	+ 1.52	29.87	S		3 12.92	+ 1.68	14.60	44.73	<i>m s</i>	8 44.740		
	3423	+ 22 31	S		56 44.04	+ 1.58	45.62	S		5 28.69	+ 1.65	30.34	44.72	<i>m s</i>	8 44.740		
	3434	+ 12 12	S		58 19.01	+ 1.53	20.54	S		7 3.59	+ 1.67	5.26	44.72	<i>m s</i>	8 44.740		

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\pi$ !l, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs for Persl. Equations $H_N - H_S = + 0^s.034$ $S_N - S_S = + 0^s.037$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar.15	3490	+ 32 3	N	<i>I. P. W.</i>	10 8 52.54	-1.13	51.41	N	<i>I. P. W.</i>	10 17 38.01	-1.78	36.23	8 44.82			
	3559	+ 36 1	N	<i>d</i>	19 29.39	-1.12	28.27	N	<i>d</i>	28 14.96	-1.79	13.17	44.90			
	3475	+ 13 56	S	<i>c - 0.3</i> <i>b + 8.9</i> <i>a - 6.3</i>	5 50.00	-1.22	48.78	S	<i>c - 2.5</i> <i>b + 0.3</i> <i>a + 5.6</i>	14 35.28	-1.73	33.55	44.77			
	3483	+ 5 12	S	<i>s</i>	7 12.39	-1.25	11.14	S	<i>s</i>	15 57.58	-1.71	55.87	44.73			
	3511	+ 23 42	S	<i>Q - 1.38</i>	11 17.70	-1.18	16.52	S	<i>Q - 1.70</i>	20 3.13	-1.75	1.38	44.86	<i>m s</i> 8 44.820	- 0.036	+ 0.002
	3522	+ 20 4	S		13 51.41	-1.20	50.21	S		22 36.79	-1.74	35.05	44.84			8 44.786
Mar.16	3371	+ 26 33	N	<i>I. P. E.</i>	9 46 38.99	+1.46	40.45	N	<i>I. P. E.</i>	9 55 23.75	+1.66	25.41	8 44.96			
	3446	+ 35 49	N	<i>d</i>	10 1 4.08	+1.46	5.54	N	<i>d</i>	10 9 49.10	+1.59	50.69	45.15			
	3386	+ 5 30	S	<i>c + 0.7</i> <i>b + 2.3</i> <i>a - 0.9</i>	9 48 32.08	+1.44	33.52	S	<i>c + 0.6</i> <i>b - 1.1</i> <i>a + 14.9</i>	9 57 16.77	+1.78	18.55	45.03	<i>m s</i> 8 45.000	- 0.035	+ 0.002
	3406	+ 13 0	S	<i>s</i>	52 28.14	+1.45	29.59	S	<i>s</i>	10 1 12.74	+1.74	14.48	44.89			
	3415	+ 8 36	S	<i>Q + 1.38</i>	54 34.15	+1.44	35.59	S	<i>Q + 1.69</i>	3 18.79	+1.77	20.56	44.97			8 44.967
Mar.16	3490	+ 32 3	N	<i>I. P. E.</i>	10 8 58.56	-1.30	57.26	N	<i>I. P. E.</i>	10 17 43.98	-1.76	42.22	8 44.96			
	3500	+ 29 54	N	<i>d</i>	10 10.78	-1.30	9.48	N	<i>d</i>	18 56.34	-1.74	54.60	45.12			
	3559	+ 36 1	N	<i>c + 0.7</i> <i>b + 2.3</i> <i>a - 0.9</i>	19 35.45	-1.30	34.15	N	<i>c + 0.6</i> <i>b - 1.1</i> <i>a + 14.9</i>	28 20.91	-1.79	19.12	44.97			
	3475	+ 13 56	S	<i>s</i>	5 55.87	-1.31	54.56	S	<i>s</i>	14 41.24	-1.65	39.59	45.03			
	3483	+ 5 12	S	<i>Q - 1.38</i>	7 18.25	-1.32	16.93	S	<i>Q - 1.69</i>	16 3.50	-1.60	1.90	44.97	<i>m s</i> 8 45.004	- 0.035	+ 0.002
	3511	+ 23 42	S		11 23.57	-1.30	22.27	S		20 8.98	-1.71	7.27	45.00			8 44.971
	3522	+ 20 4	S		13 57.28	-1.31	55.97	S		22 42.72	-1.69	41.03	45.06			
	3529	+ 7 1	S		14 60.13	-1.32	58.81	S		23 45.34	-1.61	43.73	44.92			

NOTE.—1<sup>a</sup> = 0<sup>s</sup>.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 25^m 42^s$ : AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.034$ $S_N - S_S = + 0^s.037$
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group		
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar.17	3371	+ 26 33	N	<i>I. P. W.</i>	9 46 44.58	+ 1.38	45.96	N	<i>I. P. W.</i>	9 55 29.21	+ 1.60	30.81	8 44.85			
	3392	+ 32 56	N	<i>c + 0.2</i> <i>b - 0.8</i> <i>a - 1.1</i>	50 17.72	+ 1.38	19.10	N	<i>c - 1.6</i> <i>b - 1.0</i> <i>a + 23.8</i>	59 2.47	+ 1.53	4.00	44.90			
	3439	+ 35 34	N	<i>s</i>	59 33.50	+ 1.38	34.88	N	<i>s</i>	10 8 18.37	+ 1.50	19.87	44.99			
	3446	+ 35 49	N	<i>Q + 1.39</i>	10 1 9.79	+ 1.38	11.17	N	<i>Q + 1.71</i>	9 54.67	+ 1.50	56.17	45.00			
	3386	+ 5 30	S		9 48 37.76	+ 1.36	39.12	S		9 57 22.19	+ 1.81	24.00	44.88	<i>m s</i> 8 44.892	- 0.034	
	3406	+ 13 0	S		52 33.79	+ 1.36	35.15	S		10 1 18.22	+ 1.75	19.97	44.82			
	3415	+ 8 36	S		54 39.90	+ 1.36	41.26	S		3 24.30	+ 1.79	26.09	44.83			
	3423	+ 22 31	S		56 55.63	+ 1.37	57.00	S		5 40.21	+ 1.66	41.87	44.87			
Mar.17	3490	+ 32 3	N	<i>I. P. W.</i>	10 9 4.25	- 1.40	2.85	N	<i>I. P. W.</i>	10 17 49.53	- 1.88	47.65	8 44.80			
	3500	+ 29 54	N	<i>c + 0.2</i> <i>b - 0.8</i> <i>a - 1.1</i>	10 16.60	- 1.40	15.20	N	<i>c - 1.6</i> <i>b - 1.0</i> <i>a + 23.8</i>	19 1.92	- 1.85	0.07	44.87			
	3559	+ 36 1	N	<i>s</i>	19 41.22	- 1.40	39.82	N	<i>s</i>	28 26.49	- 1.93	24.56	44.74			
	3475	+ 13 56	S	<i>Q - 1.39</i>	6 1.59	- 1.42	0.17	S	<i>Q - 1.71</i>	14 46.67	- 1.68	44.99	44.82	<i>m s</i> 8 44.791	- 0.034	
	3483	+ 5 12	S		7 24.01	- 1.42	22.59	S		16 8.02	- 1.60	7.32	44.73			
	3511	+ 23 42	S		11 29.36	- 1.41	27.95	S		20 14.52	- 1.78	12.74	44.79			
	3522	+ 20 4	S		14 3.07	- 1.41	1.66	S		22 48.19	- 1.74	46.45	44.79			
	3529	+ 7 1	S		15 5.85	- 1.42	4.43	S		23 50.84	- 1.62	49.22	44.79			
Mar.18	3371	+ 26 33	N	<i>I. P. E.</i>	9 46 50.12	+ 1.32	51.44	N	<i>I. P. E.</i>	9 55 34.86	+ 1.71	36.57	8 45.13			
	3392	+ 32 56	N	<i>c - 1.3</i> <i>b - 1.1</i> <i>a - 2.9</i>	50 23.26	+ 1.33	24.59	N	<i>c + 0.4</i> <i>b + 0.5</i> <i>a + 16.4</i>	59 7.98	+ 1.66	9.64	45.05			
	3439	+ 35 34	N	<i>s</i>	59 39.06	+ 1.32	40.38	N	<i>s</i>	10 8 23.79	+ 1.63	25.42	45.04			
	3446	+ 35 49	N	<i>Q + 1.38</i>	10 1 15.33	+ 1.32	16.65	N	<i>Q + 1.71</i>	10 0.16	+ 1.63	1.79	45.14			
	3386	+ 5 30	S		9 48 43.20	+ 1.31	44.51	S		9 57 27.89	+ 1.84	29.73	45.22	<i>m s</i> 8 45.131	- 0.035	
	3406	+ 13 0	S		52 39.25	+ 1.31	40.56	S		10 1 23.96	+ 1.80	25.76	45.20			
	3415	+ 8 36	S		54 45.31	+ 1.31	46.62	S		3 29.98	+ 1.82	31.80	45.18			
	3423	+ 22 31	S		57 1.12	+ 1.31	2.43	S		5 45.79	+ 1.73	47.52	45.09			

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heavyside, with Telescope No. 1					TRANSITS OBSERVED AT W. By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrus. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0.034 S <sub>N</sub> - S <sub>S</sub> = + 0.037	δL <sub>N</sub> - ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1888		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 20	3371	+ 26 33	N	<i>I. P. E.</i>	9 47 1.58	+ 1.38	2.96	N	<i>I. P. E.</i>	9 55 46.43	+ 1.66	48.09	8 45.13				
	3392	+ 32 56	N	<i>d</i>	50 34.67	+ 1.38	36.05	N	<i>d</i>	59 19.58	+ 1.57	21.15	45.10				
	3439	+ 35 34	N	<i>c - 1.9</i> <i>b + 1.4</i> <i>a + 1.3</i>	59 50.48	+ 1.37	51.85	N	<i>c + 0.8</i> <i>b - 0.1</i> <i>a + 31.7</i>	10 8 35.47	+ 1.52	36.99	45.14				
	3446	+ 35 49	N	<i>s</i>	10 1 26.85	+ 1.37	28.22	N	<i>s</i>	10 11.83	+ 1.52	13.35	45.13				
	3386	+ 5 30	S	<i>Q + 1.39</i>	9 48 54.61	+ 1.39	56.00	S	<i>Q + 1.69</i>	9 57 39.28	+ 1.93	41.21	45.21	<i>m s</i> 8 45.142	- 0.034		
	3406	+ 13 0	S		52 50.68	+ 1.39	52.07	S		10 1 35.38	+ 1.84	37.22	45.15			+ 0.003	
	3415	+ 8 36	S		54 56.75	+ 1.39	58.14	S		3 41.44	+ 1.89	43.33	45.19				
	3423	+ 22 31	S		57 12.51	+ 1.37	13.88	S		5 57.25	+ 1.72	58.97	45.09			8 45.110	
Mar. 20	3490	+ 32 3	N	<i>I. P. E.</i>	10 9 21.16	- 1.40	19.76	N	<i>I. P. E.</i>	10 18 6.63	- 1.80	4.83	8 45.07				
	3500	+ 29 54	N	<i>d</i>	10 33.53	- 1.40	32.13	N	<i>d</i>	19 18.98	- 1.77	17.21	45.08				
	3559	+ 36 1	N	<i>c - 1.9</i> <i>b + 1.4</i> <i>a + 1.3</i>	19 58.09	- 1.41	56.68	N	<i>c + 0.8</i> <i>b - 0.1</i> <i>a + 31.7</i>	28 43.66	- 1.87	41.79	45.11				
	3475	+ 13 56	S	<i>s</i>	6 18.44	- 1.39	17.05	S	<i>s</i>	15 3.78	- 1.55	2.23	45.18				
	3483	+ 5 12	S	<i>Q - 1.39</i>	7 40.83	- 1.39	39.44	S	<i>Q - 1.69</i>	16 26.05	- 1.45	24.60	45.16	<i>m s</i> 8 45.135	- 0.034	+ 0.002	
	3511	+ 23 42	S		11 46.22	- 1.41	44.81	S		20 31.60	- 1.68	29.92	45.11			8 45.103	
	3522	+ 20 4	S		14 19.90	- 1.41	18.49	S		23 5.31	- 1.63	3.68	45.19				
	3529	+ 7 1	S		15 22.72	- 1.39	21.33	S		24 7.98	- 1.47	6.51	45.18				

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 23^m 42^s$ : AND JUBBULPORE (W) Lat. $23^{\circ} 10'$ , Long. $5^h 19^m 58^s$ .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = +0.034$ $S_N - S_S = +0.037$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>			
Mar. 14	4057	+ 43 42	N	<i>I. P. E.</i>	11 47 21.60	+ 1.72	23.32	N	<i>I. P. E.</i>	11 56 6.75	+ 1.65	8.40	8 45.08			
	4100	+ 27 57	N	<i>d</i> <i>c</i> + 1.6	56 0.83	+ 1.55	2.38	N	<i>d</i> <i>c</i> + 0.2	12 44 57.71	+ 1.71	47.42	45.04			
	4052	+ 7 16	S	<i>b</i> + 4.2 <i>a</i> - 17.9	46 4.24	+ 1.38	5.62	S	<i>b</i> + 1.1 <i>a</i> + 7.6	11 54 49.00	+ 1.76	50.76	45.14			
	4066	+ 22 7	S	<i>s</i> <i>Q</i> + 1.39	49 28.50	+ 1.49	29.99	S	<i>s</i> <i>Q</i> + 1.69	58 13.38	+ 1.72	15.10	45.11			
	4072	+ 9 23	S		50 26.47	+ 1.40	27.87	S		59 11.24	+ 1.75	12.99	45.12			
	4081	+ 14 10	S		52 48.79	+ 1.43	50.22	S		12 1 33.57	+ 1.75	35.32	45.10			
Mar. 14	4169	+ 26 30	N	<i>I. P. E.</i>	12 7 51.54	- 1.24	50.30	N	<i>I. P. E.</i>	12 16 37.05	- 1.66	35.39	8 45.09			
	4178	+ 26 30	N	<i>d</i> <i>c</i> + 1.6	9 25.25	- 1.24	24.01	N	<i>d</i> <i>c</i> + 0.2	18 10.74	- 1.66	9.08	45.07			
	4199	+ 26 34	N	<i>b</i> + 4.2 <i>a</i> - 17.9	13 1.39	- 1.24	0.15	N	<i>b</i> + 1.1 <i>a</i> + 7.6	21 46.92	- 1.66	45.26	45.11			
	4125	+ 15 33	S	<i>s</i> <i>Q</i> - 1.39	1 17.92	- 1.33	16.59	S	<i>s</i> <i>Q</i> - 1.69	10 3.32	- 1.64	1.68	45.09			
	4228	+ 10 57	S		18 21.90	- 1.37	20.53	S		27 7.20	- 1.63	5.57	45.04			
	4240	+ 23 17	S		20 15.35	- 1.28	14.07	S		28 60.82	- 1.66	59.16	45.09			
Mar. 15	4057	+ 43 42	N	<i>I. P. W.</i>	11 47 20.03	+ 1.70	21.73	N	<i>I. P. W.</i>	11 56 4.96	+ 1.57	6.53	8 44.80			
	4059	+ 43 45	N	<i>d</i> <i>c</i> - 0.3	47 42.57	+ 1.70	44.27	N	<i>d</i> <i>c</i> - 2.5	56 27.54	+ 1.57	29.11	44.84			
	4100	+ 27 57	N	<i>b</i> + 8.9 <i>a</i> - 6.3	55 59.21	+ 1.60	60.81	N	<i>b</i> + 0.3 <i>a</i> + 5.6	12 44 4.06	+ 1.64	45.70	44.89			
	4039	+ 4 8	S	<i>s</i> <i>Q</i> + 1.38	43 24.05	+ 1.51	25.56	S	<i>s</i> <i>Q</i> + 1.70	11 52 8.62	+ 1.69	10.31	44.75			
	4052	+ 7 16	S		46 2.56	+ 1.51	4.07	S		54 47.22	+ 1.68	48.90	44.83			
	4066	+ 22 7	S		49 26.92	+ 1.58	28.50	S		58 11.62	+ 1.65	13.27	44.77			
	4072	+ 9 23	S		50 24.85	+ 1.52	26.37	S		59 9.49	+ 1.68	11.17	44.80			
	4081	+ 14 10	S		52 47.20	+ 1.54	48.74	S		12 1 31.93	+ 1.67	33.60	44.86			

NOTE.—1<sup>4</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*FYZABAD (E) Lat.  $26^\circ 47'$ , Long.  $5^h 28^m 42^s$ : AND JUBBULPORE (W) Lat.  $23^\circ 10'$ , Long.  $5^h 19^m 58^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = +0^s.034$ $S_N - S_S = +0^s.037$	$\delta L_N + \rho$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.15	4169	+ 26 30	N	<i>I. P. W.</i>	12 7 49.89	-1.17	48.72	N	<i>I. P. W.</i>	12 16 35.40	-1.76	33.64	8 44.92				
	4178	+ 26 30	N	<i>c - 0.3</i> <i>d</i>	9 23.67	-1.17	22.50	N	<i>c - 2.5</i> <i>d</i>	18 9.15	-1.76	7.39	44.89				
	4199	+ 26 34	N	<i>b + 8.9</i> <i>a - 6.3</i>	12 59.78	-1.17	58.61	N	<i>b + 0.3</i> <i>a + 5.6</i>	21 45.18	-1.76	43.42	44.81				
	4125	+ 15 33	S	<i>s</i> <i>Q - 1.38</i>	1 16.28	-1.22	15.06	S	<i>s</i> <i>Q - 1.70</i>	9 61.67	-1.73	59.94	44.88				
	4218	+ 10 22	S		15 49.76	-1.23	48.53	S		24 35.00	-1.72	33.28	44.75				
	4228	+ 10 57	S		18 20.15	-1.23	18.92	S		27 5.45	-1.72	3.73	44.81				
	4240	+ 23 17	S		20 13.73	-1.18	12.55	S		28 59.18	-1.75	57.43	44.88				
Mar.16	4057	+ 43 42	N	<i>I. P. E.</i>	11 47 18.40	+1.48	19.88	N	<i>I. P. E.</i>	11 56 3.48	+1.52	5.00	8 45.12				
	4059	+ 43 45	N	<i>c + 0.7</i> <i>d</i>	47 40.93	+1.48	42.41	N	<i>c + 0.6</i> <i>d</i>	56 26.03	+1.52	27.55	45.14				
	4100	+ 27 57	N	<i>b + 2.3</i> <i>a - 0.9</i>	55 57.54	+1.46	59.00	N	<i>b - 1.1</i> <i>a + 14.9</i>	12 442.47	+1.65	44.12	45.12				
	4039	+ 4 8	S	<i>s</i> <i>Q + 1.38</i>	43 22.38	+1.44	23.82	S	<i>s</i> <i>Q + 1.69</i>	11 52 7.15	+1.79	8.94	45.12				
	4052	+ 7 16	S		46 0.84	+1.44	2.28	S		54 45.65	+1.77	47.42	45.14				
	4066	+ 22 7	S		49 25.27	+1.46	26.73	S		58 10.02	+1.68	11.70	44.97				
	4072	+ 9 23	S		50 23.11	+1.44	24.55	S		59 7.90	+1.76	9.66	45.11				
	4081	+ 14 10	S		52 45.49	+1.45	46.94	S		12 1 30.28	+1.72	32.00	45.06				
Mar.16	4128	+ 33 43	N	<i>I. P. E.</i>	12 1 48.03	-1.30	46.73	N	<i>I. P. E.</i>	12 10 33.63	-1.77	31.86	8 45.13				
	4181	+ 26 45	N	<i>c + 0.7</i> <i>d</i>	9 37.12	-1.30	35.82	N	<i>c + 0.6</i> <i>d</i>	18 22.65	-1.72	20.93	45.11				
	4191	+ 27 55	N	<i>b + 2.3</i> <i>a - 0.9</i>	11 43.85	-1.30	42.55	N	<i>b - 1.1</i> <i>a + 14.9</i>	20 29.30	-1.73	27.57	45.02				
	4205	+ 26 53	N	<i>s</i> <i>Q - 1.38</i>	13 58.33	-1.30	57.03	N	<i>s</i> <i>Q - 1.69</i>	22 43.81	-1.72	42.09	45.06				
	4168	+ 5 57	S		7 46.06	-1.32	44.74	S		16 31.42	-1.60	29.82	45.08				
	4218	+ 10 22	S		15 48.03	-1.32	46.71	S		24 33.39	-1.62	31.77	45.06				
	4228	+ 10 57	S		18 18.45	-1.32	17.13	S		27 3.87	-1.63	2.24	45.11				
	4240	+ 23 17	S		20 12.08	-1.30	10.78	S		28 57.52	-1.71	55.81	45.03				

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 28° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .034 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .037	3L <sub>N</sub> + ρ
	P. A. C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.17	4057	+ 43 42	N	<i>I. P. W.</i>	11 47 16.48	+ 1.39	17.87	N	<i>I. P. W.</i>	11 56 1.43	+ 1.37	2.80	8 44.93				
	4059	+ 43 45	N	<i>c</i> + 0.2 <i>d</i>	47 39.05	+ 1.39	40.44	N	<i>c</i> - 1.6 <i>d</i>	56 24.00	+ 1.37	25.37	44.93				
	4100	+ 27 57	N	<i>b</i> - 0.8 <i>a</i> - 1.1	55 55.54	+ 1.38	56.92	N	<i>b</i> - 1.0 <i>a</i> + 23.8	12 44.0.27	+ 1.59	41.86	44.94				
	4039	+ 4 8	S	<i>s</i> <i>Q</i> + 1.39	43 20.35	+ 1.36	21.71	S	<i>s</i> <i>Q</i> + 1.71	11 52 4.83	+ 1.82	6.65	44.94				
	4052	+ 7 16	S		45 58.90	+ 1.36	60.26	S		54 43.28	+ 1.80	45.08	44.82	<i>m s</i>	+ 0.013	+	8 44.918
	4066	+ 22 7	S		49 23.32	+ 1.37	24.69	S		58 7.81	+ 1.66	9.47	44.78				
	4072	+ 9 23	S		50 21.17	+ 1.36	22.53	S		59 5.65	+ 1.78	7.43	44.90				
	4081	+ 14 10	S		52 43.49	+ 1.36	44.85	S		12 1 28.09	+ 1.74	29.83	44.98				
Mar.17	4128	+ 33 43	N	<i>I. P. W.</i>	12 1 46.12	- 1.40	44.72	N	<i>I. P. W.</i>	12 10 31.51	- 1.90	29.61	8 44.89				
	4181	+ 26 45	N	<i>c</i> + 0.2 <i>d</i>	9 35.18	- 1.40	33.78	N	<i>c</i> - 1.6 <i>d</i>	18 20.59	- 1.82	18.77	44.99				
	4191	+ 27 55	N	<i>b</i> - 0.8 <i>a</i> - 1.1	11 41.90	- 1.40	40.50	N	<i>b</i> - 1.0 <i>a</i> + 23.8	20 27.22	- 1.83	25.39	44.89				
	4205	+ 26 53	N	<i>s</i> <i>Q</i> - 1.39	13 56.34	- 1.40	54.94	N	<i>s</i> <i>Q</i> - 1.71	22 41.71	- 1.82	39.89	44.95				
	4168	+ 5 57	S		7 44.03	- 1.42	42.61	S		16 29.18	- 1.61	27.57	44.96	<i>m s</i>	+ 0.013	+	8 44.930
	4218	+ 10 22	S		15 46.03	- 1.42	44.61	S		24 31.13	- 1.65	29.48	44.87				
	4228	+ 10 57	S		18 16.51	- 1.42	15.09	S		26 61.55	- 1.65	59.90	44.81				
	4240	+ 23 17	S		20 10.08	- 1.41	8.67	S		28 55.40	- 1.77	53.63	44.96				
Mar.18	4057	+ 43 42	N	<i>I. P. E.</i>	11 47 14.24	+ 1.34	15.58	N	<i>I. P. E.</i>	11 55 59.22	+ 1.55	60.77	8 45.19				
	4059	+ 43 45	N	<i>c</i> - 1.3 <i>d</i>	47 36.84	+ 1.34	38.18	N	<i>c</i> + 0.4 <i>d</i>	56 21.89	+ 1.55	23.44	45.26				
	4100	+ 27 57	N	<i>b</i> - 1.1 <i>a</i> - 2.9	55 53.32	+ 1.32	54.64	N	<i>b</i> + 0.5 <i>a</i> + 16.4	12 4 38.23	+ 1.70	39.93	45.29				
	4039	+ 4 8	S	<i>s</i> <i>Q</i> + 1.38	43 18.10	+ 1.30	19.40	S	<i>s</i> <i>Q</i> + 1.71	11 52 2.77	+ 1.85	4.62	45.22				
	4052	+ 7 16	S		45 56.61	+ 1.31	57.92	S		54 41.41	+ 1.83	43.24	45.32	<i>m s</i>	+ 0.011	+	8 45.244
	4066	+ 22 7	S		49 21.00	+ 1.31	22.31	S		58 5.79	+ 1.74	7.53	45.22				
	4072	+ 9 23	S		50 18.88	+ 1.31	20.19	S		59 3.54	+ 1.82	5.36	45.17				
	4081	+ 14 10	S		52 41.28	+ 1.32	42.60	S		12 1 25.99	+ 1.79	27.78	45.18				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 25 <sup>m</sup> 42 <sup>s</sup> : AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations $H_N - H_S = + 0^s.034$ $S_N - S_S = + 0^s.037$	$\delta L_N + \rho$
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1888		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.18	4128	+ 33 43	N	<i>I. P. E.</i>	12 143.89	-1.44	42.45	N	<i>I. P. E.</i>	12 10 29.38	-1.77	27.61	8 45.16				
	4181	+ 26 45	N	<i>c - 1.3</i> <i>d</i>	9 32.95	-1.44	31.51	N	<i>c + 0.4</i> <i>d</i>	18 18.41	-1.72	16.69	45.18				
	4191	+ 27 55	N	<i>b - 1.1</i> <i>a - 2.9</i>	11 39.74	-1.44	38.30	N	<i>b + 0.5</i> <i>a + 16.4</i>	20 25.03	-1.72	23.31	45.01				
	4205	+ 26 53	N	<i>s</i> <i>Q - 1.38</i>	13 54.19	-1.44	52.75	N	<i>s</i> <i>Q - 1.71</i>	22 39.49	-1.72	37.77	45.02				
	4168	+ 5 57	S		7 41.81	-1.45	40.36	S		16 27.11	-1.58	25.53	45.17	<i>m s</i> 8 45.144	+ 0.011	+ 0.002	
	4218	+ 10 22	S		15 43.74	-1.45	42.29	S		24 29.10	-1.61	27.49	45.20				
	4228	+ 10 57	S		18 14.19	-1.45	12.74	S		26 59.64	-1.61	58.03	45.20				
	4240	+ 23 17	S		20 7.84	-1.44	6.40	S		28 53.21	-1.69	51.52	45.12				
Mar.19	4057	+ 43 42	N	<i>I. P. W.</i>	11 47 12.50	+1.70	14.20	N	<i>I. P. W.</i>	11 55 57.53	+1.42	58.95	8 44.75				
	4059	+ 43 45	N	<i>c + 1.6</i> <i>d</i>	47 35.07	+1.70	36.77	N	<i>c - 0.7</i> <i>d</i>	56 20.08	+1.42	21.50	44.73				
	4100	+ 27 57	N	<i>b + 10.6</i> <i>a + 5.7</i>	55 51.58	+1.70	53.28	N	<i>b - 0.0</i> <i>a + 23.7</i>	12 43 6.49	+1.63	38.12	44.84				
	4039	+ 4 8	S	<i>s</i> <i>Q + 1.39</i>	43 16.36	+1.70	18.06	S	<i>s</i> <i>Q + 1.70</i>	11 52 0.95	+1.85	2.80	44.74	<i>m s</i> 8 44.766	+ 0.011	+ 0.002	
	4052	+ 7 16	S		45 54.88	+1.70	56.58	S		54 39.46	+1.83	41.29	44.71				
	4066	+ 22 7	S		49 19.25	+1.70	20.05	S		58 3.97	+1.69	5.66	44.71				
	4072	+ 9 23	S		50 17.16	+1.70	18.86	S		59 1.88	+1.81	3.69	44.83				
	4081	+ 14 10	S		53 39.54	+1.70	41.24	S		12 1 24.29	+1.77	26.06	44.82				
Mar.19	4128	+ 33 43	N	<i>I. P. W.</i>	12 1 42.19	-1.09	41.10	N	<i>I. P. W.</i>	12 10 27.76	-1.84	25.92	8 44.82				
	4181	+ 26 45	N	<i>c + 1.6</i> <i>d</i>	9 31.19	-1.08	30.11	N	<i>c - 0.7</i> <i>d</i>	18 16.84	-1.76	15.08	44.97				
	4191	+ 27 55	N	<i>b + 10.6</i> <i>a + 5.7</i>	11 37.97	-1.08	36.89	N	<i>b - 0.0</i> <i>a + 23.7</i>	20 23.47	-1.77	21.70	44.81				
	4205	+ 26 53	N	<i>s</i> <i>Q - 1.39</i>	13 52.48	-1.08	51.40	N	<i>s</i> <i>Q - 1.70</i>	22 37.84	-1.76	36.08	44.68				
	4168	+ 5 57	S		7 40.12	-1.08	39.04	S		16 25.42	-1.56	23.86	44.82	<i>m s</i> 8 44.809	+ 0.011	+ 0.002	
	4218	+ 10 22	S		15 42.12	-1.08	41.04	S		24 27.40	-1.60	25.80	44.76				
	4228	+ 10 57	S		18 12.51	-1.08	11.43	S		26 57.76	-1.60	56.16	44.73				
	4240	+ 23 17	S		20 6.13	-1.08	5.05	S		28 51.65	-1.72	49.93	44.88				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> ; AND JUBBULPORE (W) Lat. 23° 10', Long. 5 <sup>h</sup> 19 <sup>m</sup> 58 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .034 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .037	δ L <sub>N</sub> + ρ
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ,			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.20	4057	+ 43 42	N	<i>I. P. E.</i>	11 47 10 <sup>·</sup> 71	+ 1 <sup>·</sup> 36	12 <sup>·</sup> 07	N	<i>I. P. E.</i>	11 55 55 <sup>·</sup> 94	+ 1 <sup>·</sup> 36	57 <sup>·</sup> 30	8 45 <sup>·</sup> 23				
	4059	+ 43 45	N	<i>d</i>	47 33 <sup>·</sup> 30	+ 1 <sup>·</sup> 36	34 <sup>·</sup> 66	N	<i>d</i>	56 18 <sup>·</sup> 56	+ 1 <sup>·</sup> 36	19 <sup>·</sup> 92	45 <sup>·</sup> 26				
	4100	+ 27 57	N	<i>c - 1<sup>·</sup>9</i> <i>b + 1<sup>·</sup>4</i> <i>a + 1<sup>·</sup>3</i>	55 49 <sup>·</sup> 79	+ 1 <sup>·</sup> 38	51 <sup>·</sup> 17	N	<i>c + 0<sup>·</sup>8</i> <i>b - 0<sup>·</sup>1</i> <i>a + 31<sup>·</sup>7</i>	12 434 <sup>·</sup> 73	+ 1 <sup>·</sup> 64	36 <sup>·</sup> 37	45 <sup>·</sup> 20				
	4039	+ 4 8	S	<i>s</i>	43 14 <sup>·</sup> 55	+ 1 <sup>·</sup> 39	15 <sup>·</sup> 94	S	<i>s</i>	11 51 59 <sup>·</sup> 24	+ 1 <sup>·</sup> 94	61 <sup>·</sup> 18	45 <sup>·</sup> 24				
	4052	+ 7 16	S	<i>Q + 1<sup>·</sup>39</i>	45 53 <sup>·</sup> 10	+ 1 <sup>·</sup> 39	54 <sup>·</sup> 49	S	<i>Q + 1<sup>·</sup>69</i>	54 37 <sup>·</sup> 81	+ 1 <sup>·</sup> 91	39 <sup>·</sup> 72	45 <sup>·</sup> 23	<i>m s</i> 8 45 <sup>·</sup> 111	+ 0 <sup>·</sup> 012		
	4068	+ 22 7	S		49 17 <sup>·</sup> 47	+ 1 <sup>·</sup> 37	18 <sup>·</sup> 84	S		58 2 <sup>·</sup> 31	+ 1 <sup>·</sup> 72	4 <sup>·</sup> 03	45 <sup>·</sup> 19		+ 0 <sup>·</sup> 002		
	4072	+ 9 23	S		50 15 <sup>·</sup> 37	+ 1 <sup>·</sup> 39	16 <sup>·</sup> 76	S		59 0 <sup>·</sup> 07	+ 1 <sup>·</sup> 88	1 <sup>·</sup> 95	45 <sup>·</sup> 19				
	4081	+ 14 10	S		52 37 <sup>·</sup> 73	+ 1 <sup>·</sup> 39	39 <sup>·</sup> 12	S		12 122 <sup>·</sup> 46	+ 1 <sup>·</sup> 83	24 <sup>·</sup> 29	45 <sup>·</sup> 17			8 45 <sup>·</sup> 125	
Mar.20	4128	+ 33 43	N	<i>I. P. E.</i>	12 140 <sup>·</sup> 33	- 1 <sup>·</sup> 40	38 <sup>·</sup> 93	N	<i>I. P. E.</i>	12 1025 <sup>·</sup> 96	- 1 <sup>·</sup> 83	24 <sup>·</sup> 13	8 45 <sup>·</sup> 20				
	4181	+ 26 45	N	<i>d</i>	9 29 <sup>·</sup> 36	- 1 <sup>·</sup> 40	27 <sup>·</sup> 96	N	<i>d</i>	18 14 <sup>·</sup> 94	- 1 <sup>·</sup> 72	13 <sup>·</sup> 22	45 <sup>·</sup> 26				
	4191	+ 27 55	N	<i>c - 1<sup>·</sup>9</i> <i>b + 1<sup>·</sup>4</i> <i>a + 1<sup>·</sup>3</i>	11 36 <sup>·</sup> 13	- 1 <sup>·</sup> 40	34 <sup>·</sup> 73	N	<i>c + 0<sup>·</sup>8</i> <i>b - 0<sup>·</sup>1</i> <i>a + 31<sup>·</sup>7</i>	20 21 <sup>·</sup> 60	- 1 <sup>·</sup> 74	19 <sup>·</sup> 86	45 <sup>·</sup> 13				
	4205	+ 26 53	N	<i>s</i>	13 50 <sup>·</sup> 66	- 1 <sup>·</sup> 40	49 <sup>·</sup> 26	N	<i>s</i>	22 36 <sup>·</sup> 10	- 1 <sup>·</sup> 72	34 <sup>·</sup> 38	45 <sup>·</sup> 12				
	4168	+ 5 57	S	<i>Q - 1<sup>·</sup>39</i>	7 38 <sup>·</sup> 25	- 1 <sup>·</sup> 39	36 <sup>·</sup> 86	S	<i>Q - 1<sup>·</sup>69</i>	16 23 <sup>·</sup> 52	- 1 <sup>·</sup> 45	22 <sup>·</sup> 07	45 <sup>·</sup> 21	<i>m s</i> 8 45 <sup>·</sup> 215	+ 0 <sup>·</sup> 012		
	4218	+ 10 22	S		15 40 <sup>·</sup> 23	- 1 <sup>·</sup> 39	38 <sup>·</sup> 84	S		24 25 <sup>·</sup> 58	- 1 <sup>·</sup> 51	24 <sup>·</sup> 07	45 <sup>·</sup> 23		+ 0 <sup>·</sup> 002		
	4228	+ 10 57	S		18 10 <sup>·</sup> 68	- 1 <sup>·</sup> 39	9 <sup>·</sup> 29	S		26 56 <sup>·</sup> 11	- 1 <sup>·</sup> 51	54 <sup>·</sup> 60	45 <sup>·</sup> 31			8 45 <sup>·</sup> 229	
	4240	+ 23 17	S		20 4 <sup>·</sup> 33	- 1 <sup>·</sup> 41	2 <sup>·</sup> 92	S		28 49 <sup>·</sup> 85	- 1 <sup>·</sup> 67	48 <sup>·</sup> 18	45 <sup>·</sup> 26				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^{\circ} 29^m 42^s$ ; AND AGRA (W) Lat.  $27^{\circ} 10'$ , Long.  $5^{\circ} 12^m 14^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.020$	$M_N$
			By Heavyside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.28	4057	+ 43 42	N	<i>I. P. E.</i>	11 55 50.22	+ 1.68	51.90	N	<i>I. P. E.</i>	11 56 10.71	+ 1.75	12.46	+ 0 20.56				
	4059	+ 43 45	N	<i>d</i>	56 12.78	+ 1.68	14.46	N	<i>d</i>	56 33.33	+ 1.75	35.08	20.62				
	4100	+ 27 57	N	<i>c + 1.6</i> <i>b + 7.5</i> <i>a - 1.1</i>	12 4 29.35	+ 1.63	30.98	N	<i>c + 0.4</i> <i>b + 0.2</i> <i>a - 17.0</i>	12 4 50.00	+ 1.61	51.61	20.63				
	4039	+ 4 8	S	<i>s</i>	11 51 53.99	+ 1.59	55.58	S	<i>s</i>	11 52 14.74	+ 1.44	16.18	20.60				
	4066	+ 22 7	S	<i>Q + 1.40</i>	57 56.92	+ 1.62	58.54	S	<i>Q + 1.58</i>	58 17.59	+ 1.55	19.14	20.60				
	4072	+ 9 23	S		58 54.81	+ 1.59	56.40	S		59 15.57	+ 1.47	17.04	20.64				
	4100	+ 27 57	S		12 4 29.35	+ 1.63	30.98	S		12 4 49.98	+ 1.61	51.59	20.61				
				Mean, $T_E$	11 58 32												
Mar.28	4142	+ 28 49	N	<i>I. P. E.</i>	12 13 20.66	- 1.17	19.49	N	<i>I. P. E.</i>	12 13 41.66	- 1.55	40.11	+ 0 20.62				
	4147	+ 29 7	N	<i>d</i>	13 40.17	- 1.17	39.00	N	<i>d</i>	13 61.24	- 1.55	59.69	20.69				
	4169	+ 26 30	N	<i>c + 1.6</i> <i>b + 7.5</i> <i>a - 1.1</i>	16 20.14	- 1.17	18.97	N	<i>c + 0.4</i> <i>b + 0.2</i> <i>a - 17.0</i>	16 41.19	- 1.57	39.62	20.65				
	4178	+ 26 30	N	<i>s</i>	17 53.84	- 1.17	52.67	N	<i>s</i>	18 14.82	- 1.57	13.25	20.58				
	4188	+ 39 40	N	<i>Q - 1.40</i>	19 47.81	- 1.13	46.68	N	<i>Q - 1.58</i>	20 8.74	- 1.45	7.29	20.61				
	4195	+ 28 55	N		20 49.07	- 1.17	47.90	N		21 10.13	- 1.55	8.58	20.68				
	4205	+ 26 53	N		22 30.24	- 1.17	29.07	N		22 51.29	- 1.56	49.73	20.66				
	4127	+ 24 36	S		10 7.98	- 1.17	6.81	S		10 29.08	- 1.59	27.49	20.68				
	4169	+ 26 30	S		16 20.09	- 1.17	18.92	S		16 41.13	- 1.57	39.56	20.64				
	4178	+ 26 30	S		17 53.75	- 1.17	52.58	S		18 14.91	- 1.57	13.34	20.76				
	4205	+ 26 53	S		22 30.11	- 1.17	28.94	S		22 51.20	- 1.56	49.64	20.70				
				Mean, $T_E$	12 17 23												
Mar.29	4057	+ 43 42	N	<i>I. P. W.</i>	11 55 55.74	+ 1.39	57.13	N	<i>I. P. W.</i>	11 56 16.84	+ 1.64	18.48	+ 0 21.35				
	4059	+ 43 45	N	<i>d</i>	56 18.33	+ 1.39	19.72	N	<i>d</i>	56 39.43	+ 1.64	41.07	21.35				
	4100	+ 27 57	N	<i>c - 1.6</i> <i>b + 1.2</i> <i>a - 2.4</i>	12 4 34.83	+ 1.37	36.20	N	<i>c - 1.8</i> <i>b - 1.2</i> <i>a - 20.4</i>	12 4 56.01	+ 1.49	57.50	21.30				
	4066	+ 22 7	S	<i>s</i>	11 58 2.44	+ 1.37	3.81	S	<i>s</i>	11 58 23.78	+ 1.45	25.23	21.42				
	4072	+ 9 23	S	<i>Q + 1.38</i>	59 0.31	+ 1.35	1.66	S	<i>Q + 1.56</i>	59 21.68	+ 1.35	23.03	21.37				
	4081	+ 14 10	S		12 1 22.72	+ 1.36	24.08	S		12 1 44.10	+ 1.38	45.48	21.40				
	4100	+ 27 57	S		4 34.84	+ 1.37	36.21	S		4 56.08	+ 1.49	57.57	21.36				
				Mean, $T_E$	11 59 58												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *sif*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrus. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .020	M <sub>N</sub>
	B. A. C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 29	4142	+ 28 49	N	<i>I. P. W.</i>	12 13 26.19	-1.39	24.80	N	<i>I. P. W.</i>	12 13 47.73	-1.63	46.10	+ 0 21.30				
	4147	+ 29 7	N	<i>c - 1.6</i> <i>d</i>	13 45.82	-1.39	44.43	N	<i>c - 1.8</i> <i>d</i>	14 7.28	-1.62	5.66	21.23				
	4178	+ 26 30	N	<i>b + 1.2</i> <i>a - 2.4</i>	17 59.35	-1.39	57.96	N	<i>b - 1.2</i> <i>a - 20.4</i>	18 20.92	-1.65	19.27	21.31				
	4188	+ 39 40	N	<i>Q - 1.38</i>	19 53.36	-1.38	51.98	N	<i>Q - 1.56</i>	20 14.80	-1.51	13.29	21.31				
	4195	+ 28 55	N		20 54.64	-1.39	53.25	N		21 16.19	-1.62	14.57	21.32				
	4205	+ 26 53	N		22 35.76	-1.39	34.37	N		22 57.32	-1.64	55.68	21.31				
	4169	+ 26 30	S		16 25.60	-1.39	24.21	S		16 47.16	-1.65	45.51	21.30				
	4178	+ 26 30	S		17 59.40	-1.39	58.01	S		18 20.96	-1.65	19.31	21.30				
	4205	+ 26 53	S		22 35.61	-1.39	34.22	S		22 57.28	-1.64	55.64	21.42				
				Mean, T <sub>E</sub>	12 18 24												
Mar. 30	4057	+ 43 42	N	<i>I. P. E.</i>	11 56 1.13	+1.40	2.53	N	<i>I. P. E.</i>	11 56 23.02	+1.84	24.86	+ 0 22.33				
	4059	+ 43 45	N	<i>c + 0.3</i> <i>d</i>	56 23.61	+1.40	25.01	N	<i>c - 0.9</i> <i>d</i>	56 45.61	+1.84	47.45	22.44				
	4052	+ 7 16	S	<i>b - 1.8</i> <i>a - 5.7</i>	54 43.40	+1.32	44.72	S	<i>b - 1.7</i> <i>a - 39.5</i>	55 5.96	+1.21	7.17	22.45				
	4066	+ 22 7	S	<i>Q + 1.39</i>	58 7.83	+1.35	9.18	S	<i>Q + 1.57</i>	58 30.15	+1.43	31.58	22.40				
	4072	+ 9 23	S		59 5.69	+1.32	7.01	S		59 28.31	+1.23	29.54	22.53				
	4100	+ 27 57	S		12 44.02	+1.35	41.57	S		12 5 2.45	+1.53	3.98	22.41				
				Mean, T <sub>E</sub>	11 58 10												
Mar. 30	4142	+ 28 49	N	<i>I. P. E.</i>	12 13 31.50	-1.42	30.08	N	<i>I. P. E.</i>	12 13 54.14	-1.60	52.54	+ 0 22.46				
	4169	+ 26 30	N	<i>c + 0.3</i> <i>d</i>	16 31.01	-1.43	29.58	N	<i>c - 0.9</i> <i>d</i>	16 53.77	-1.64	52.13	22.55				
	4178	+ 26 30	N	<i>b - 1.8</i> <i>a - 5.7</i>	18 4.68	-1.43	3.25	N	<i>b - 1.7</i> <i>a - 39.5</i>	18 27.37	-1.64	25.73	22.48				
	4188	+ 39 40	N	<i>Q - 1.39</i>	19 58.67	-1.39	57.28	N	<i>Q - 1.57</i>	20 21.14	-1.40	19.74	22.46				
	4195	+ 28 55	N		20 59.97	-1.42	58.55	N		21 22.63	-1.60	21.03	22.48				
	4205	+ 26 53	N		22 41.13	-1.43	39.70	N		23 3.80	-1.64	2.16	22.46				
	4127	+ 24 36	S		10 18.84	-1.43	17.41	S		10 41.66	-1.67	39.99	22.58				
	4169	+ 26 30	S		16 30.94	-1.43	29.51	S		16 53.60	-1.64	51.96	22.45				
	4178	+ 26 30	S		18 4.66	-1.43	3.23	S		18 27.44	-1.64	25.80	22.57				
	4205	+ 26 53	S		22 40.98	-1.43	39.55	S		23 3.68	-1.64	2.04	22.49				
				Mean, T <sub>E</sub>	12 17 56												

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation 412, all records having been transcribed by the same person.

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 25 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .020	M <sub>N</sub>
	B.A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star				
													Mean of Group	Mean of Group			
1883		0			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.31	4057	+ 43 42	N	<i>I. P. W.</i>	11 56 6 <sup>s</sup> .17	+ 1 <sup>s</sup> .73	7 <sup>s</sup> .90	N	<i>I. P. W.</i>	11 56 28 <sup>s</sup> .61	+ 2 <sup>s</sup> .02	30 <sup>s</sup> .63	+ 0 22 <sup>s</sup> .73				
	4039	+ 4 8	S	<i>c + 0<sup>s</sup>.6</i>	52 10 <sup>s</sup> .22	+ 1 <sup>s</sup> .48	11 <sup>s</sup> .70	S	<i>c - 0<sup>s</sup>.9</i>	52 33 <sup>s</sup> .47	+ 1 <sup>s</sup> .12	34 <sup>s</sup> .59	22 <sup>s</sup> .89				
	4052	+ 7 16	S	<i>b + 7<sup>s</sup>.6</i> <i>a - 9<sup>s</sup>.4</i>	54 48 <sup>s</sup> .78	+ 1 <sup>s</sup> .49	50 <sup>s</sup> .27	S	<i>b - 0<sup>s</sup>.2</i> <i>a - 52<sup>s</sup>.4</i>	55 11 <sup>s</sup> .76	+ 1 <sup>s</sup> .18	12 <sup>s</sup> .94	22 <sup>s</sup> .67				
	4066	+ 22 7	S	<i>s</i> <i>Q + 1<sup>s</sup>.39</i>	58 13 <sup>s</sup> .12	+ 1 <sup>s</sup> .56	14 <sup>s</sup> .68	S	<i>s</i> <i>Q + 1<sup>s</sup>.60</i>	58 35 <sup>s</sup> .97	+ 1 <sup>s</sup> .47	37 <sup>s</sup> .44	22 <sup>s</sup> .76				
	4072	+ 9 23	S		59 11 <sup>s</sup> .02	+ 1 <sup>s</sup> .51	12 <sup>s</sup> .53	S		59 34 <sup>s</sup> .11	+ 1 <sup>s</sup> .21	35 <sup>s</sup> .32	22 <sup>s</sup> .79				
	4081	+ 14 10	S		12 1 33 <sup>s</sup> .41	+ 1 <sup>s</sup> .52	34 <sup>s</sup> .93	S		12 1 56 <sup>s</sup> .53	+ 1 <sup>s</sup> .31	57 <sup>s</sup> .84	22 <sup>s</sup> .91				
				Mean, T <sub>B</sub>	11 57 0												
Mar.31	4142	+ 28 49	N	<i>I. P. W.</i>	12 13 36 <sup>s</sup> .88	- 1 <sup>s</sup> .16	35 <sup>s</sup> .72	N	<i>I. P. W.</i>	12 13 59 <sup>s</sup> .95	- 1 <sup>s</sup> .59	58 <sup>s</sup> .36	+ 0 22 <sup>s</sup> .64				
	4147	+ 29 7	N	<i>c + 0<sup>s</sup>.6</i>	13 56 <sup>s</sup> .39	- 1 <sup>s</sup> .16	55 <sup>s</sup> .23	N	<i>c - 0<sup>s</sup>.9</i>	14 19 <sup>s</sup> .61	- 1 <sup>s</sup> .58	18 <sup>s</sup> .03	22 <sup>s</sup> .80				
	4169	+ 26 30	N	<i>b + 7<sup>s</sup>.6</i> <i>a - 9<sup>s</sup>.4</i>	16 36 <sup>s</sup> .31	- 1 <sup>s</sup> .18	35 <sup>s</sup> .13	N	<i>b - 0<sup>s</sup>.2</i> <i>a - 52<sup>s</sup>.4</i>	16 59 <sup>s</sup> .57	- 1 <sup>s</sup> .65	57 <sup>s</sup> .02	22 <sup>s</sup> .79				
	4178	+ 26 30	N	<i>s</i> <i>Q - 1<sup>s</sup>.39</i>	18 10 <sup>s</sup> .00	- 1 <sup>s</sup> .18	8 <sup>s</sup> .82	N	<i>s</i> <i>Q - 1<sup>s</sup>.60</i>	18 33 <sup>s</sup> .29	- 1 <sup>s</sup> .65	31 <sup>s</sup> .64	22 <sup>s</sup> .82				
	4188	+ 39 40	N		20 3 <sup>s</sup> .92	- 1 <sup>s</sup> .09	2 <sup>s</sup> .83	N		20 26 <sup>s</sup> .83	- 1 <sup>s</sup> .31	25 <sup>s</sup> .52	22 <sup>s</sup> .69				
	4195	+ 28 55	N		21 5 <sup>s</sup> .22	- 1 <sup>s</sup> .16	4 <sup>s</sup> .06	N		21 28 <sup>s</sup> .42	- 1 <sup>s</sup> .59	26 <sup>s</sup> .83	22 <sup>s</sup> .77				
	4205	+ 26 53	N		22 46 <sup>s</sup> .39	- 1 <sup>s</sup> .18	45 <sup>s</sup> .21	N		23 9 <sup>s</sup> .66	- 1 <sup>s</sup> .64	8 <sup>s</sup> .02	22 <sup>s</sup> .81				
	4127	+ 24 36	S		10 24 <sup>s</sup> .13	- 1 <sup>s</sup> .20	22 <sup>s</sup> .93	S		10 47 <sup>s</sup> .45	- 1 <sup>s</sup> .68	45 <sup>s</sup> .77	22 <sup>s</sup> .84				
	4169	+ 26 30	S		16 36 <sup>s</sup> .23	- 1 <sup>s</sup> .18	35 <sup>s</sup> .05	S		16 59 <sup>s</sup> .49	- 1 <sup>s</sup> .65	57 <sup>s</sup> .84	22 <sup>s</sup> .79				
	4178	+ 26 30	S		18 9 <sup>s</sup> .99	- 1 <sup>s</sup> .18	8 <sup>s</sup> .81	S		18 33 <sup>s</sup> .21	- 1 <sup>s</sup> .65	31 <sup>s</sup> .56	22 <sup>s</sup> .75				
	4205	+ 26 53	S		22 46 <sup>s</sup> .31	- 1 <sup>s</sup> .18	45 <sup>s</sup> .13	S		23 9 <sup>s</sup> .57	- 1 <sup>s</sup> .64	7 <sup>s</sup> .93	22 <sup>s</sup> .80				
				Mean, T <sub>B</sub>	12 17 39												

NOTE.—1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 28^m 42^s$ ; AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .														
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)	
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2					By each Star	Mean of Group
	B.A.C. Number	Declination	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time		
1883 Apr. 3		$^{\circ}$			$h\ m\ s$	$s$	$s$			$h\ m\ s$	$s$	$s$	$m\ s$	
	4057	+ 43 42	N	<i>I. P. E.</i>	11 56 22.27	+1.52	23.79	N	<i>I. P. E.</i>	11 56 8.04	+1.53	49.57	+0 25.78	
	4059	+ 43 45	N	$c + 0.7$	56 44.86	+1.52	46.38	N	$d$	57 10.68	+1.53	12.21	25.83	
	4100	+ 27 57	N	$b + 4.0$	12 5 1.44	+1.51	2.95	N	$b - 2.3$	12 5 27.25	+1.47	28.72	25.77	
	4039	+ 4 8	S	$a + 0.8$	11 52 26.03	+1.50	27.53	S	$a - 8.4$	11 52 51.98	+1.41	53.39	25.86	
	4052	+ 7 16	S	$s$	55 4.57	+1.51	6.08	S	$s$	55 30.54	+1.42	31.96	25.88	
	4066	+ 22 7	S	$Q + 1.39$	58 29.02	+1.51	30.53	S	$Q + 1.52$	58 54.88	+1.45	56.33	25.80	
	4072	+ 9 23	S		59 26.91	+1.51	28.42	S		59 52.82	+1.42	54.24	25.82	
	4081	+ 14 10	S		12 1 49.28	+1.50	50.78	S		12 2 15.22	+1.44	16.66	25.88	
	4100	+ 27 57	S		5 1.47	+1.51	2.98	S		5 27.27	+1.47	28.74	25.76	
Mean, $T_E$					11 58 56								$m\ s$	
													+ 0 25.820	
Apr. 3	4142	+ 28 49	N	<i>I. P. E.</i>	12 13 52.78	-1.27	51.51	N	<i>I. P. E.</i>	12 14 18.93	-1.56	17.37	+0 25.86	
	4147	+ 29 7	N	$d$	14 12.33	-1.27	11.06	N	$d$	14 38.48	-1.56	36.92	25.86	
	4169	+ 26 30	N	$c + 0.7$	16 52.25	-1.27	50.98	N	$c + 0.3$	17 18.38	-1.57	16.81	25.83	
	4178	+ 26 30	N	$b + 4.0$	18 25.84	-1.27	24.57	N	$b - 2.3$	18 52.11	-1.57	50.54	25.97	
	4188	+ 39 40	N	$a + 0.8$	20 19.84	-1.27	18.57	N	$a - 8.4$	20 46.02	-1.53	44.49	25.92	
	4195	+ 28 55	N	$s$	21 21.16	-1.27	19.89	N	$s$	21 47.38	-1.56	45.82	25.93	
	4205	+ 26 53	N	$Q - 1.39$	23 2.32	-1.27	1.05	N	$Q - 1.52$	23 28.48	-1.57	26.91	25.86	
	4127	+ 24 36	S		10 40.07	-1.27	38.80	S		11 6.27	-1.58	4.69	25.89	
	4169	+ 26 30	S		16 52.12	-1.27	50.85	S		17 18.38	-1.57	16.81	25.96	
	4178	+ 26 30	S		18 25.88	-1.27	24.61	S		18 52.13	-1.57	50.56	25.95	
	4205	+ 26 53	S		23 2.16	-1.27	0.89	S		23 28.46	-1.57	26.89	26.00	
Mean, $T_E$					12 17 55								$m\ s$	
													+ 0 25.912	
													0.073	
													0.012	
													+ 0 25.827	
														$M_N$
													Corrns. for Persl. Equations $H_N - H_S = + 0.052$ $S_N - S_S = + 0.020$	

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $m$ , all records having been transcribed by the same person.

*TABLE VIII.* OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heavyside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>h</sup> 05 <sup>m</sup> 2 <sup>s</sup> S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>h</sup> 02 <sup>m</sup> 0 <sup>s</sup>	M N
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Apr. 4	4057	+ 43 42	N	<i>I. P. W.</i>	11 56 27.85	+ 1.43	29.28	N	<i>I. P. W.</i>	11 56 53.96	+ 1.88	55.84	+ 0 26.56				
	4059	+ 43 45	N	<i>d</i> e - 0.8	56 50.38	+ 1.43	51.81	N	<i>d</i> e + 0.8	57 16.60	+ 1.88	18.48	26.67				
	4100	+ 27 57	N	<i>b</i> + 2.4 <i>a</i> + 0.1	12 5 6.92	+ 1.42	8.34	N	<i>b</i> + 0.5 <i>a</i> - 29.0	12 5 33.43	+ 1.63	35.06	26.72				
	4039	+ 4 8	S	<i>s</i> Q + 1.38	11 52 31.60	+ 1.41	33.01	S	<i>s</i> Q + 1.59	11 52 58.33	+ 1.36	59.69	26.68				
	4052	+ 7 16	S		55 10.15	+ 1.41	11.56	S		55 36.76	+ 1.40	38.16	26.60				
	4072	+ 9 23	S		59 32.42	+ 1.41	33.83	S		59 59.09	+ 1.42	60.51	26.68				
	4081	+ 14 10	S		12 1 54.79	+ 1.41	56.20	S		12 2 21.45	+ 1.47	22.92	26.72				
	4100	+ 27 57	S		5 6.97	+ 1.42	8.39	S		5 33.45	+ 1.63	35.08	26.69				
				Mean, T <sub>E</sub>	11 59 5												
Apr. 4	4112	+ 28 49	N	<i>I. P. W.</i>	12 13 58.30	- 1.34	56.96	N	<i>I. P. W.</i>	12 14 25.06	- 1.54	23.52	+ 0 26.56				
	4117	+ 29 7	N	<i>d</i> e - 0.8	14 17.87	- 1.34	16.53	N	<i>d</i> e + 0.8	14 44.66	- 1.54	43.12	26.59				
	4169	+ 26 30	N	<i>b</i> + 2.4 <i>a</i> + 0.1	16 57.81	- 1.34	56.47	N	<i>b</i> + 0.5 <i>a</i> - 29.0	17 24.63	- 1.57	23.06	26.59				
	4178	+ 26 30	N	<i>s</i> Q - 1.38	18 31.45	- 1.34	30.11	N	<i>s</i> Q - 1.59	18 58.31	- 1.57	56.74	26.63				
	4188	+ 39 40	N		20 25.44	- 1.33	24.11	N		20 52.12	- 1.38	50.74	26.63				
	4195	+ 28 55	N		21 26.70	- 1.34	25.36	N		21 53.57	- 1.54	52.03	26.67				
	4205	+ 26 53	N		23 7.89	- 1.34	6.55	N		23 34.71	- 1.56	33.15	26.60				
	4127	+ 24 36	S		10 45.63	- 1.34	44.29	S		11 12.53	- 1.59	10.94	26.65				
	4169	+ 26 30	S		16 57.68	- 1.34	56.34	S		17 24.60	- 1.57	23.03	26.69				
	4178	+ 26 30	S		18 31.47	- 1.34	30.13	S		18 58.38	- 1.57	56.81	26.68				
	4205	+ 26 53	S		23 7.70	- 1.34	6.36	S		23 34.64	- 1.56	33.08	26.72				
				Mean, T <sub>E</sub>	12 18 1												

NOTE.—1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.



## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ \*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .020	δ L <sub>N</sub> - ρ
	B.A.C. Number	Declination	Star's Aspect	By Heavyside, with Telescope No. 1				Star's Aspect	By Strahan, with Telescope No. 2				By each Star	Mean of Group			
				In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time		In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time					
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar 28	3765	+ 39 50	N	<i>I. P. E.</i>	10 53 56.59	+ 1.65	58.24	N	<i>I. P. E.</i>	11 10 24.63	+ 1.71	26.34	16 28.10				
	3784	+ 38 52	N	<i>c + 1.6</i>	57 40.58	+ 1.65	42.23	N	<i>d</i>	14 8.53	+ 1.70	10.23	28.00				
	1348†	+ 38 53	N	<i>b + 6.8</i> <i>a - 1.1</i>	57 53.32	+ 1.65	54.97	N	<i>c + 0.4</i> <i>b + 0.2</i> <i>a - 17.0</i>	14 21.24	+ 1.70	22.94	27.97				
	3797	+ 26 10	N	<i>s</i> <i>Q + 1.40</i>	11 0 27.17	+ 1.61	28.78	N	<i>s</i> <i>Q + 1.58</i>	16 55.17	+ 1.59	56.76	27.98				
	3811	+ 36 57	N		2 32.68	+ 1.65	34.33	N		19 0.63	+ 1.68	2.31	27.98	<i>m s</i> 16 28.008	0.060		
	3776	+ 20 48	S		10 55 44.54	+ 1.60	46.14	S		12 12.66	+ 1.54	14.20	28.06				
	3797	+ 26 10	S		11 0 27.14	+ 1.61	28.75	S		16 55.15	+ 1.59	56.74	27.99				
	3824	+ 15 2	S		5 15.22	+ 1.59	16.81	S		21 43.29	+ 1.51	44.80	27.99				
	3831	+ 20 46	S		7 11.85	+ 1.60	13.45	S		23 39.91	+ 1.54	41.45	28.00				
Mar 28	3851	+ 32 11	N	<i>I. P. E.</i>	11 11 38.98	- 1.18	37.80	N	<i>I. P. E.</i>	11 28 7.34	- 1.52	5.82	16 28.02				
	3856	+ 38 50	N	<i>d</i> <i>c + 1.6</i>	12 27.83	- 1.15	26.68	N	<i>d</i> <i>c + 0.4</i>	28 56.08	- 1.46	54.62	27.94				
	3868	+ 44 7	N	<i>b + 6.8</i> <i>a - 1.1</i>	16 6.95	- 1.14	5.81	N	<i>b + 0.2</i> <i>a - 17.0</i>	32 35.17	- 1.40	33.77	27.96				
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.40</i>	22 28.66	- 1.15	27.51	N	<i>s</i> <i>Q - 1.58</i>	38 56.91	- 1.45	55.46	27.95				
	3877	+ 11 11	S		17 32.04	- 1.22	30.82	S		33 60.45	- 1.68	58.77	27.95	<i>m s</i> 16 27.983	0.060		
	3886	+ 17 5	S		19 12.84	- 1.20	11.64	S		35 41.30	- 1.64	39.66	28.02				
	3804 <sub>1</sub>	+ 3 40	S		20 32.57	- 1.23	31.34	S		36 61.04	- 1.72	59.32	27.98				
	3915	+ 19 3	S		24 5.18	- 1.20	3.98	S		40 33.65	- 1.63	32.02	28.04				
	Mar 29	3765	+ 39 50	N	<i>I. P. W.</i>	10 54 2.18	+ 1.35	3.53	N	<i>I. P. W.</i>	11 10 29.95	+ 1.61	31.56	16 28.03			
3784		+ 38 52	N	<i>d</i> <i>c - 1.6</i>	57 46.06	+ 1.34	47.40	N	<i>d</i> <i>c - 1.8</i>	14 13.89	+ 1.60	15.49	28.09				
1348†		+ 38 53	N	<i>b - 0.1</i> <i>a - 2.4</i>	57 58.81	+ 1.34	60.15	N	<i>b - 1.2</i> <i>a - 20.4</i>	14 26.62	+ 1.60	28.22	28.07				
3797		+ 26 10	N	<i>s</i> <i>Q + 1.38</i>	11 0 32.68	+ 1.34	34.02	N	<i>s</i> <i>Q + 1.56</i>	17 0.52	+ 1.47	1.99	27.97				
3811		+ 36 57	N		2 38.17	+ 1.34	39.51	N		19 5.94	+ 1.58	7.52	28.01	<i>m s</i> 16 28.049	0.061		
3797		+ 26 10	S		0 32.66	+ 1.34	34.00	S		17 0.57	+ 1.47	2.04	28.04				
3824		+ 15 2	S		5 20.68	+ 1.33	22.01	S		21 48.74	+ 1.39	50.13	28.12				
3831		+ 20 46	S		7 17.34	+ 1.33	18.67	S		23 45.30	+ 1.43	46.73	28.06				

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *all*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations. † Of Greenwich Catalogue, 1864.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ : AND AGRA (W) Lat.  $27^{\circ} 10'$ , Long.  $5^h 12^m 14^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E. Clock	Corrns for Persl Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.020$	$\delta J_N - \rho$
	B A.C. Number	Declination	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		o			<i>h m s</i>	<i>s</i>	<i>s</i>		<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>					
Mar.29	3851	+ 32 11	N	<i>I. P. W.</i>	11 11 44.50	-1.41	43.09	N	<i>I. P. W.</i>	11 28 12 69	-1.59	11.10	16 28.01				
	3856	+ 38 50	N	<i>c - 1.6</i> <i>d</i>	12 33.28	-1.42	31.86	N	<i>c - 1.8</i> <i>d</i>	28 61.39	-1.52	59.87	28.01				
	3868	+ 44 7	N	<i>b - 0.1</i> <i>a - 2.4</i>	16 12.37	-1.41	10.96	N	<i>b - 1.2</i> <i>a - 20.4</i>	32 40.44	-1.47	38.97	28.01				
	3905	+ 39 59	N	<i>s</i> <i>Q - 1.38</i>	22 34.10	-1.41	32.69	N	<i>s</i> <i>Q - 1.56</i>	39 2.19	-1.51	0.68	27.99	<i>m s</i> 16 28.012	0.061	0.016	
	3877	+ 11 11	S		17 37.47	-1.43	36.04	S		34 5.82	-1.76	4.06	28.02				
	3886	+ 17 5	S		19 18.31	-1.43	16.88	S		35 46.64	-1.72	44.92	28.04				
	3894 <sub>1</sub>	+ 3 40	S		20 38.02	-1.44	36.58	S		37 6.42	-1.80	4.62	28.04				
	3915	+ 19 3	S		24 10.70	-1.43	9.27	S		40 38.95	-1.70	37.25	27.98			16 27.935	
Mar.30	3765	+ 39 50	N	<i>I. P. E.</i>	10 54 7.45	+1.41	8.86	N	<i>I. P. E.</i>	11 10 35.19	+1.74	36.93	16 28.07				
	3784	+ 38 52	N	<i>c + 0.3</i> <i>d</i>	57 51.39	+1.40	52.79	N	<i>c - 0.9</i> <i>d</i>	14 19.15	+1.72	20.87	28.08				
	1348†	+ 38 53	N	<i>b - 1.1</i> <i>a - 5.7</i>	58 4.15	+1.40	5.55	N	<i>b - 1.7</i> <i>a - 39.5</i>	14 31.84	+1.72	33.56	28.01				
	3797	+ 26 10	N	<i>s</i> <i>Q + 1.39</i>	11 0 37.98	+1.37	39.35	N	<i>s</i> <i>Q + 1.57</i>	17 5.92	+1.49	7.41	28.06				
	3811	+ 36 57	N		2 43.48	+1.40	44.88	N		19 11.26	+1.68	12.94	28.06	<i>m s</i> 16 28.091	0.062	0.014	
	3776	+ 20 48	S		10 55 55.40	+1.36	56.76	S		12 23.47	+1.40	24.87	28.11			16 28.015	
	3797	+ 26 10	S		11 0 37.96	+1.37	39.33	S		17 5.91	+1.49	7.40	28.07				
	3824	+ 15 2	S		5 26.03	+1.34	27.37	S		21 54.26	+1.32	55.58	28.21				
	3831	+ 20 46	S		7 22.68	+1.36	24.04	S		23 50.79	+1.40	52.19	28.15				
	Mar.30	3851	+ 32 11	N	<i>I. P. E.</i>	11 11 49.75	-1.40	48.35	N	<i>I. P. E.</i>	11 28 18.02	-1.55	16.47	16 28.12			
3856		+ 38 50	N	<i>c + 0.3</i> <i>d</i>	12 38.56	-1.38	37.18	N	<i>c - 0.9</i> <i>d</i>	29 6.76	-1.42	5.34	28.16				
3868		+ 44 7	N	<i>b - 1.1</i> <i>a - 5.7</i>	16 17.69	-1.36	16.33	N	<i>b - 1.7</i> <i>a - 39.5</i>	32 45.73	-1.29	44.44	28.11				
...		+ 39 57	N	<i>s</i> <i>Q - 1.39</i>	22 10.69	-1.37	9.32	N	<i>s</i> <i>Q - 1.57</i>	38 38.70	-1.39	37.31	27.99				
3905		+ 39 59	N		22 39.38	-1.37	38.01	N		39 7.44	-1.39	6.05	28.04	<i>m s</i> 16 28.084	0.062	0.016	
3877		+ 11 11	S		17 42.88	-1.43	41.45	S		34 11.41	-1.88	9.53	28.08			16 28.006	
3886		+ 17 5	S		19 23.65	-1.43	22.22	S		35 52.09	-1.80	50.29	28.07				
3894 <sub>1</sub>		+ 3 40	S		20 43.38	-1.45	41.93	S		37 12.01	-1.99	10.02	28.09				
3894 <sub>2</sub>		+ 3 40	S		20 44.42	-1.45	42.97	S		37 13.00	-1.99	11.01	28.04				
3915		+ 19 3	S		24 16.07	-1.43	14.64	S		40 44.54	-1.76	42.78	28.14				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations. † Of Greenwich Catalogue, 1864.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> 0 <sup>s</sup> 5 <sup>s</sup> 2 S <sub>N</sub> - S <sub>S</sub> = + 0 0 20 δL <sub>N</sub> - ρ
	B A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group		
1883 Mar. 31	3784	+ 38 52	N	<i>I. P. W.</i>	10 57 56.69	+ 1.68	58.37	N	<i>I. P. W.</i>	11 14 24.29	+ 1.87	26.16	16 27.79			
	1348†	+ 38 53	N	<i>c + 0.6</i>	58 9.38	+ 1.68	11.06	N	<i>d - 0.9</i>	14 37.11	+ 1.87	38.98	27.92			
	3811	+ 36 57	N	<i>b + 7.6</i>	11 248.81	+ 1.67	50.48	N	<i>b - 0.2</i>	19 16.42	+ 1.81	18.23	27.75			
	3824	+ 15 2	S	<i>a - 9.4</i>	5 31.42	+ 1.52	32.94	S	<i>a - 52.4</i>	21 59.42	+ 1.32	60.74	27.80			
	3831	+ 20 46	S	<i>Q + 1.39</i>	7 28.04	+ 1.56	29.60	S	<i>Q + 1.60</i>	23 55.96	+ 1.44	57.40	27.80			
Mar. 31	3851	+ 32 11	N	<i>I. P. W.</i>	11 11 54.98	- 1.15	53.83	N	<i>I. P. W.</i>	11 28 23.26	- 1.51	21.75	16 27.92			
	3856	+ 38 50	N	<i>c + 0.6</i>	12 43.86	- 1.10	42.76	N	<i>d - 0.9</i>	29 11.89	- 1.34	10.55	27.79			
	3868	+ 44 7	N	<i>b + 7.6</i>	16 22.86	- 1.05	21.81	N	<i>b - 0.2</i>	32 50.79	- 1.16	49.63	27.82			
	...	+ 39 57	N	<i>a - 9.4</i>	22 15.91	- 1.09	14.82	N	<i>a - 52.4</i>	38 43.85	- 1.30	42.55	27.73			
	3905	+ 39 59	N	<i>Q - 1.39</i>	22 44.61	- 1.09	43.52	N	<i>Q - 1.60</i>	39 12.71	- 1.30	11.41	27.89			
	3877	+ 11 11	S		17 48.21	- 1.27	46.94	S		34 16.66	- 1.95	14.71	27.77			
	3886	+ 17 5	S		19 29.02	- 1.24	27.78	S		35 57.47	- 1.84	55.63	27.85			
	3894 <sub>1</sub>	+ 3 40	S		20 48.80	- 1.30	47.50	S		37 17.42	- 2.09	15.33	27.83			
	3894 <sub>2</sub>	+ 3 40	S		20 49.82	- 1.30	48.52	S		37 18.42	- 2.09	16.33	27.81			
	3915	+ 19 3	S		24 21.36	- 1.23	20.13	S		40 49.76	- 1.80	47.96	27.83			
Apr. 3	3765	+ 39 50	N	<i>I. P. E.</i>	10 54 28.73	+ 1.51	30.24	N	<i>I. P. E.</i>	11 10 56.89	+ 1.51	58.40	16 28.16			
	3784	+ 38 52	N	<i>c + 0.7</i>	58 12.67	+ 1.52	14.19	N	<i>d - 0.3</i>	14 40.80	+ 1.51	42.31	28.12			
	1348†	+ 38 53	N	<i>b + 4.0</i>	58 25.38	+ 1.52	26.90	N	<i>b - 2.3</i>	14 53.53	+ 1.51	55.04	28.14			
	3797	+ 26 10	N	<i>a + 0.8</i>	11 0 59.20	+ 1.51	60.71	N	<i>a - 8.4</i>	17 27.44	+ 1.47	28.91	28.20			
	3811	+ 36 57	N	<i>Q + 1.39</i>	3 4.73	+ 1.52	6.25	N	<i>Q + 1.52</i>	19 32.89	+ 1.51	34.40	28.15			
	3776	+ 20 48	S		10 56 16.61	+ 1.51	18.12	S		12 44.86	+ 1.45	46.31	28.19			
	3797	+ 26 10	S		11 0 59.19	+ 1.51	60.70	S		17 27.47	+ 1.47	28.94	28.24			
	3824	+ 15 2	S		5 47.27	+ 1.50	48.77	S		22 15.57	+ 1.44	17.01	28.24			
	3831	+ 20 46	S		7 43.91	+ 1.51	45.42	S		24 12.19	+ 1.45	13.64	28.22			

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations. † Of Greenwich Catalogue, 1864.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 43 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of E Clock	Corrus for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0° 05.2 S <sub>N</sub> - S <sub>S</sub> = + 0° 02.0	δL <sub>N</sub> - ρ
			By Heaviside, with Telescope No. 1					By Strahan, with Telescope No. 2									
	B A.C. Number	Declination	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	Star's Aspect	Instrumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time	By each Star	Mean of Group			
1883		o .			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Apr. 3	3851	+ 32 11	N	<i>I. P. E.</i>	11 12 11.08	-1.26	9.82	N	<i>I. P. E.</i>	11 28 39.57	-1.55	38.02	16 28.20				
	3856	+ 38 50	N	<i>d</i> <i>c</i> + 0.7	12 59.87	-1.26	58.61	N	<i>d</i> <i>c</i> + 0.3	29 28.42	-1.53	26.89	28.28				
	3868	+ 44 7	N	<i>b</i> + 4.0 <i>a</i> + 0.8	16 38.95	-1.26	37.69	N	<i>b</i> - 2.3 <i>a</i> - 8.4	33 7.48	-1.50	5.98	28.29				
	...	+ 39 57	N	<i>s</i>	22 31.94	-1.27	30.67	N	<i>s</i>	38 60.40	-1.53	58.87	28.20				
	3905	+ 39 59	N	<i>Q</i> - 1.39	22 60.70	-1.27	59.43	N	<i>Q</i> - 1.52	39 29.11	-1.53	27.58	28.15				
	3877	+ 11 11	S		18 4.05	-1.28	2.77	S		34 32.63	-1.61	31.02	28.25				
	3886	+ 17 5	S		19 44.86	-1.28	43.58	S		36 13.51	-1.60	11.91	28.33				
	3894 <sub>1</sub>	+ 3.40	S		21 4.57	-1.28	3.29	S		37 33.21	-1.64	31.57	28.28				
	3894 <sub>2</sub>	+ 3.40	S		21 5.54	-1.28	4.26	S		37 34.17	-1.64	32.53	28.27				
	3915	+ 19 3	S		24 37.29	-1.28	36.01	S		41 5.83	-1.59	4.24	28.23				
Apr. 4	3765	+ 39 50	N	<i>I. P. W.</i>	10 54 34.23	+1.40	35.63	N	<i>I. P. W.</i>	11 11 1.72	+1.81	3.53	16 27.90				
	3784	+ 38 52	N	<i>d</i> <i>c</i> - 0.8	58 18.17	+1.40	19.57	N	<i>d</i> <i>c</i> + 0.8	14 45.60	+1.79	47.39	27.82				
	1348†	+ 38 53	N	<i>b</i> + 1.3 <i>a</i> + 0.1	58 30.87	+1.40	32.27	N	<i>b</i> + 0.5 <i>a</i> - 29.0	14 58.44	+1.79	60.23	27.96				
	3797	+ 26 10	N	<i>s</i>	11 1 4.74	+1.39	6.13	N	<i>s</i>	17 32.44	+1.61	34.05	27.92				
	3811	+ 36 57	N	<i>Q</i> + 1.38	3 10.22	+1.40	11.02	N	<i>Q</i> + 1.59	19 37.76	+1.76	39.52	27.90				
	3776	+ 20 48	S		10 56 22.14	+1.39	23.53	S		12 49.92	+1.54	51.46	27.93				
	3797	+ 26 10	S		11 1 4.74	+1.39	6.13	S		17 32.46	+1.61	34.07	27.94				
	3824	+ 15 2	S		5 52.82	+1.39	54.21	S		22 20.53	+1.48	22.01	27.80				
	3831	+ 20 46	S		7 49.44	+1.39	50.83	S		24 17.25	+1.54	18.79	27.96				
Apr. 4	3851	+ 32 11	N	<i>I. P. W.</i>	11 12 16.55	-1.37	15.18	N	<i>I. P. W.</i>	11 28 44.53	-1.49	43.04	16 27.86				
	3856	+ 38 50	N	<i>d</i> <i>c</i> - 0.8	13 5.41	-1.36	4.05	N	<i>d</i> <i>c</i> + 0.8	29 33.28	-1.39	31.89	27.84				
	3868	+ 44 7	N	<i>b</i> + 1.3 <i>a</i> + 0.1	16 44.46	-1.37	43.09	N	<i>b</i> + 0.5 <i>a</i> - 29.0	33 12.23	-1.29	10.94	27.85				
	...	+ 39 57	N	<i>s</i>	22 37.38	-1.36	36.02	N	<i>s</i>	39 5.27	-1.37	3.90	27.88				
	3905	+ 39 59	N	<i>Q</i> - 1.38	23 6.13	-1.36	4.77	N	<i>Q</i> - 1.59	39 34.08	-1.37	32.71	27.94				
	3877	+ 11 11	S		18 9.52	-1.37	8.15	S		34 37.78	-1.74	36.04	27.89				
	3886	+ 17 5	S		19 50.41	-1.37	49.04	S		36 18.58	-1.68	16.90	27.80				
	3894 <sub>1</sub>	+ 3.40	S		21 10.11	-1.37	8.74	S		37 38.41	-1.82	36.59	27.85				
	3894 <sub>2</sub>	+ 3.40	S		21 11.12	-1.37	9.75	S		37 39.39	-1.82	37.57	27.82				
	3915	+ 19 3	S		24 42.74	-1.37	41.37	S		41 10.94	-1.66	9.28	27.91				

NOTE.— $d = 0^{\circ}0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person\*  $\rho$  is the retardation of an electric signal between the stations † Of Greenwich Catalogue, 1861

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. 26° 47', Long. 5 <sup>h</sup> 28 <sup>m</sup> 42 <sup>s</sup> : AND AGRA (W) Lat. 27° 10', Long. 5 <sup>h</sup> 12 <sup>m</sup> 14 <sup>s</sup> .																	
Astronomical Date	STAR		TRANSITS OBSERVED AT E By Heaviside, with Telescope No. 1					TRANSITS OBSERVED AT W By Strahan, with Telescope No. 2					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .020	δ L <sub>N</sub> + ρ
	B.A.C. Number	Declina- tion	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group			
1883		°			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar. 28	4346	+ 38 57	N	<i>I. P. E.</i>	12 34 57.72	+ 1.67	7.39	N	<i>I. P. E.</i>	12 50 33.89	+ 1.70	35.59	16 28.20				
	4360	+ 31 25	N	<i>c</i> + 1.6 <i>d</i>	38 13.00	+ 1.64	14.64	N	<i>c</i> + 0.4 <i>d</i>	54 41.18	+ 1.63	42.81	28.17				
	4384	+ 36 26	N	<i>b</i> + 7.5 <i>a</i> - 17.0	43 48.77	+ 1.66	50.43	N	<i>b</i> + 0.2 <i>a</i> - 17.0	13 0 16.80	+ 1.68	18.48	28.05				
	4390	+ 28 15	N	<i>s</i> <i>Q</i> + 1.40	45 6.46	+ 1.63	8.09	N	<i>s</i> <i>Q</i> + 1.58	1 34.56	+ 1.61	36.17	28.08				
	4393	+ 28 11	N		45 50.22	+ 1.63	51.85	N		2 18.29	+ 1.61	19.90	28.05				
	4351	+ 18 3	S		36 40.80	+ 1.62	42.42	S		12 53 9.04	+ 1.53	10.57	28.15				
	4367	+ 11 36	S		39 53.67	+ 1.60	55.27	S		56 21.98	+ 1.48	23.46	28.19				
	4403	+ 17 28	S		47 35.31	+ 1.61	36.92	S		13 4 3.53	+ 1.52	5.05	28.13				
Mar. 28	4438	+ 41 28	N	<i>I. P. E.</i>	12 53 51.64	- 1.12	50.52	N	<i>I. P. E.</i>	13 10 20.12	- 1.43	18.69	16 28.17				
	4479	+ 37 39	N	<i>c</i> + 1.6 <i>d</i>	13 2 10.97	- 1.13	9.84	N	<i>c</i> + 0.4 <i>d</i>	18 39.48	- 1.47	38.01	28.17				
	4536	+ 37 47	N	<i>b</i> + 7.5 <i>a</i> - 17.0	13 9.81	- 1.13	8.68	N	<i>b</i> + 0.2 <i>a</i> - 17.0	29 38.20	- 1.47	36.73	28.05				
	4444	+ 14 17	S	<i>s</i> <i>Q</i> - 1.40	12 55 3.78	- 1.20	2.58	S	<i>s</i> <i>Q</i> - 1.58	11 32.43	- 1.66	30.77	28.19				
	4499	+ 14 24	S		13 6 17.92	- 1.20	16.72	S		22 46.49	- 1.66	44.83	28.11				
	4526	+ 24 58	S		10 50.97	- 1.17	49.80	S		27 19.57	- 1.59	17.98	28.18				
Mar. 29	4479	+ 37 39	N	<i>I. P. W.</i>	13 2 17.39	- 1.39	16.00	N	<i>I. P. W.</i>	13 18 45.61	- 1.53	44.08	16 28.08				
	4536	+ 37 47	N	<i>c</i> - 1.6 <i>d</i>	13 16.11	- 1.39	14.72	N	<i>c</i> - 1.8 <i>d</i>	29 44.36	- 1.53	42.83	28.11				
	4499	+ 14 24	S	<i>b</i> + 1.2 <i>a</i> - 2.4	6 24.25	- 1.40	22.85	S	<i>b</i> - 1.2 <i>a</i> - 20.4	22 52.60	- 1.73	50.87	28.02				
	4513	+ 24 50	S	<i>s</i> <i>Q</i> - 1.38	8 61.12	- 1.39	59.73	S	<i>s</i> <i>Q</i> - 1.56	25 29.50	- 1.65	27.85	28.12				
	4526	+ 24 58	S		10 57.39	- 1.39	56.00	S		27 25.74	- 1.65	24.09	28.09				

NOTE.— $1^d = 0^{\circ} 0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ : AND AGRA (W) Lat.  $27^{\circ} 10'$ , Long.  $5^h 12^m 14^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W Clock	Corrns for Persl Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.020$	$\delta L_N + \rho$
	B.A.C. Number	Declination	Star's Aspect	By Heaviside, with Telescope No. 1				Star's Aspect	By Strahan, with Telescope No. 2				By each Star	Mean of Group			
				In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time		In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time					
1883		•			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Mar.30	4345	+ 38 57	N	<i>I. P. E.</i>	12 34 17.13	+ 1.38	18.51	N	<i>I P E.</i>	12 50 45.05	+ 1.72	46.77	16 28.26				
	4346	+ 38 57	N	<i>c + 0.3</i> <i>d</i>	34 18.37	+ 1.38	19.75	N	<i>c - 0.9</i> <i>d</i>	50 46.33	+ 1.72	48.05	28.30				
	4360	+ 31 25	N	<i>b - 1.8</i> <i>a - 5.7</i>	38 25.64	+ 1.36	27.00	N	<i>b - 1.7</i> <i>a - 39.5</i>	54 53.72	+ 1.59	55.31	28.31				
	4384	+ 36 26	N	<i>s</i> <i>Q + 1.39</i>	44 1.33	+ 1.38	2.71	N	<i>s</i> <i>Q + 1.57</i>	13 0 29.29	+ 1.67	30.96	28.25				
	4390	+ 28 15	N		45 19.05	+ 1.35	20.40	N		1 47.13	+ 1.53	48.66	28.26				
	4393	+ 28 11	N		46 2.78	+ 1.35	4.13	N		2 30.83	+ 1.53	32.56	28.23				
	4351	+ 18 3	S		36 53.42	+ 1.34	54.76	S		12 53 21.67	+ 1.36	23.03	28.27				
	4367	+ 11 36	S		40 6.31	+ 1.33	7.64	S		56 34.69	+ 1.27	35.96	28.32				
	4373	- 3 2	S		41 38.07	+ 1.30	39.37	S		58 6.70	+ 1.07	7.77	28.40				
	4403	+ 17 28	S		47 47.88	+ 1.34	49.22	S		13 4 16.14	+ 1.35	17.49	28.27				
Mar.30	4433	+ 40 46	N	<i>I. P. E.</i>	12 52 12.56	- 1.39	11.17	N	<i>I. P. E.</i>	13 8 40.90	- 1.38	39.52	16 28.35				
	4438	+ 41 28	N	<i>c + 0.3</i> <i>d</i>	54 4.27	- 1.39	2.88	N	<i>c - 0.9</i> <i>d</i>	10 32.51	- 1.36	31.15	28.27				
	4536	+ 37 47	N	<i>b - 1.8</i> <i>a - 5.7</i>	13 13 22.39	- 1.40	20.99	N	<i>b - 1.7</i> <i>a - 39.5</i>	29 50.67	- 1.44	49.23	28.24				
	4444	+ 14 17	S	<i>s</i> <i>Q - 1.39</i>	12 55 16.44	- 1.45	14.99	S	<i>s</i> <i>Q - 1.57</i>	11 45.09	- 1.84	43.25	28.26				
	4499	+ 14 24	S		13 6 30.49	- 1.45	29.04	S		22 59.19	- 1.83	57.36	28.32				
	Mar.31	4345	+ 38 57	N	<i>I. P. W.</i>	12 34 23.01	+ 1.68	24.69	N	<i>I. P. W.</i>	12 50 50.86	+ 1.87	52.73	16 28.04			
4346		+ 38 57	N	<i>c + 0.6</i> <i>d</i>	34 24.28	+ 1.68	25.96	N	<i>c - 0.9</i> <i>d</i>	50 52.09	+ 1.87	53.96	28.00				
4360		+ 31 25	N	<i>b + 7.6</i> <i>a - 9.4</i>	38 31.53	+ 1.63	33.16	N	<i>b - 0.2</i> <i>a - 52.4</i>	54 59.56	+ 1.67	61.23	28.07				
4384		+ 36 26	N	<i>s</i> <i>Q + 1.39</i>	44 7.21	+ 1.66	8.87	N	<i>s</i> <i>Q + 1.60</i>	13 0 35.01	+ 1.80	36.81	27.94				
4390		+ 28 15	N		45 24.96	+ 1.61	26.57	N		1 52.87	+ 1.60	54.47	27.90				
4393		+ 28 11	N		46 8.72	+ 1.61	10.33	N		2 36.66	+ 1.59	38.25	27.92				
4351		+ 18 3	S		36 59.39	+ 1.55	60.94	S		12 53 27.61	+ 1.38	28.09	28.05				
4367		+ 11 36	S		40 12.35	+ 1.51	13.86	S		56 40.58	+ 1.26	41.84	27.98				
4373		- 3 2	S		41 44.09	+ 1.44	45.53	S		58 12.51	+ 0.99	13.50	27.97				
4393		+ 28 11	S		46 8.61	+ 1.61	10.22	S		13 2 36.69	+ 1.59	38.28	28.06				
4403		+ 17 28	S		47 53.86	+ 1.54	55.40	S		4 22.00	+ 1.37	23.37	27.97				

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

FYZABAD (E) Lat. $26^{\circ} 47'$ , Long. $5^h 25^m 42^s$ : AND AGRA (W) Lat. $27^{\circ} 10'$ , Long. $5^h 12^m 14^s$ .															
Astronomical Date	STAR		TRANSITS OBSERVED AT E <i>By Heaviside, with Telescope No. 1</i>					TRANSITS OBSERVED AT W <i>By Strahan, with Telescope No. 2</i>					Difference of Corrected Times (W - E)		Corrns. for Persl Equations $H_N - H_S = + 0^s.052$ $S_N - S_S = + 0^s.020$
	B.A.C. Number	Declination	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	Star's Aspect	In- strumental Position and Correction Constants	Mean Observed Time	Total Correc- tion	Seconds of Correct- ed Time	By each Star	Mean of Group	
1883					<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>		
Mar. 31	4433	+ 40 46	N	<i>I. P. W.</i>	12 52 18.41	-1.08	17.33	N	<i>I. P. W.</i>	13 8 46.55	-1.28	45.27	16 27.94		
	4438	+ 41 28	N	<i>c + 0.6</i> <i>d</i>	54 10.08	-1.08	9.00	N	<i>c + 0.9</i> <i>d</i>	10 38.22	-1.25	36.97	27.97		
	4479	+ 37 39	N	<i>b + 7.6</i> <i>a - 9.4</i>	13 22 29.47	-1.11	28.36	N	<i>b - 0.2</i> <i>a - 52.4</i>	18 57.69	-1.37	56.32	27.96		
	4536	+ 37 47	N	<i>s</i>	13 28.19	-1.11	27.08	N	<i>s</i>	29 56.51	-1.37	55.14	28.06		
	4444	+ 14 17	S	<i>Q - 1.39</i>	12 55 22.34	-1.26	21.08	S	<i>Q - 1.60</i>	11 51.06	-1.89	49.17	28.09		
	4499	+ 14 24	S		13 6 36.44	-1.26	35.18	S		23 5.06	-1.89	3.17	27.99		
	4526	+ 24 58	S		11 9.47	-1.20	8.27	S		27 38.03	-1.67	36.36	28.09		
Apr. 3	4345	+ 38 57	N	<i>I. P. E.</i>	12 34 41.72	+1.52	43.24	N	<i>I. P. E.</i>	12 51 9.99	+1.51	11.50	16 28.26		
	4346	+ 38 57	N	<i>c + 0.7</i> <i>d</i>	34 42.93	+1.52	44.45	N	<i>c + 0.3</i> <i>d</i>	51 11.24	+1.51	12.75	28.30		
	4360	+ 31 25	N	<i>b + 4.0</i> <i>a + 0.8</i>	38 50.23	+1.52	51.75	N	<i>b - 2.3</i> <i>a - 8.4</i>	55 18.56	+1.49	20.05	28.30		
	4384	+ 36 26	N	<i>s</i>	44 25.93	+1.52	27.45	N	<i>s</i>	13 0 54.18	+1.51	55.69	28.24		
	4390	+ 28 15	N	<i>Q + 1.39</i>	45 43.63	+1.51	45.14	N	<i>Q + 1.52</i>	2 11.89	+1.47	13.36	28.22		
	4393	+ 28 11	N		46 27.38	+1.51	28.89	N		2 55.69	+1.47	57.16	28.27		
	4351	+ 18 3	S		37 17.93	+1.50	19.43	S		12 53 46.41	+1.45	47.86	28.43		
	4367	+ 11 36	S		40 30.84	+1.50	32.34	S		56 59.31	+1.43	60.74	28.40		
	4373	- 3 2	S		42 2.58	+1.50	4.08	S		58 31.01	+1.40	32.41	28.33		
	4403	+ 17 28	S		48 12.47	+1.50	13.97	S		13 4 40.84	+1.45	42.29	28.32		
Apr. 3	4133	+ 40 46	N	<i>I. P. E.</i>	12 52 37.15	-1.26	35.89	N	<i>I. P. E.</i>	13 9 5.85	-1.52	4.33	16 28.44		
	4438	+ 41 28	N	<i>c + 0.7</i> <i>d</i>	54 28.81	-1.26	27.55	N	<i>c + 0.3</i> <i>d</i>	10 57.50	-1.52	55.98	28.43		
	4479	+ 37 39	N	<i>b + 4.0</i> <i>a + 0.8</i>	13 2 48.25	-1.26	46.99	N	<i>b - 2.3</i> <i>a - 8.4</i>	19 16.88	-1.53	15.35	28.36		
	4536	+ 37 47	N	<i>s</i>	13 46.92	-1.26	45.66	N	<i>s</i>	30 15.64	-1.53	14.11	28.45		
	4444	+ 14 17	S	<i>Q - 1.39</i>	12 55 40.95	-1.28	39.67	S	<i>Q - 1.52</i>	12 9.79	-1.60	8.19	28.52		
	4499	+ 14 24	S		13 6 55.06	-1.28	53.78	S		23 23.82	-1.60	22.22	28.44		
	4526	+ 24 58	S		11 28.12	-1.27	26.85	S		27 56.93	-1.58	55.35	28.50		

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*FYZABAD (E) Lat.  $26^{\circ} 47'$ , Long.  $5^h 28^m 42^s$ : AND AGRA (W) Lat.  $27^{\circ} 10'$ , Long.  $5^h 12^m 14^s$ .

Astronomical Date	STAR		TRANSITS OBSERVED AT E					TRANSITS OBSERVED AT W					Difference of Corrected Times (W - E)		Correction for Rate of W. Clock	Corrs. for Persl. Equations H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .052 S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .020	δL <sub>N</sub> + ρ
	B.A.C. Number	Declination	Star's Aspect	By Heaviside, with Telescope No. 1				Star's Aspect	By Strahan, with Telescope No. 2				By each Star	Mean of Group			
				In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time		In-strumental Position and Correction Constants	Mean Observed Time	Total Correction	Seconds of Corrected Time					
1883		° ' "			<i>h m s</i>	<i>s</i>	<i>s</i>			<i>h m s</i>	<i>s</i>	<i>s</i>	<i>m s</i>				
Apr. 4	4315	+ 38 57	N	<i>I. P. W.</i>	12 34 48.39	+ 1.44	49.83	N	<i>I. P. W.</i>	12 51 16.03	+ 1.79	17.82	16 27.99				
	4346	+ 38 57	N	<i>c - 0.8</i> <i>d</i>	34 49.66	+ 1.44	51.10	N	<i>c + 0.8</i> <i>d</i>	51 17.25	+ 1.79	19.04	27.94				
	4360	+ 31 25	N	<i>b + 3.0</i> <i>a + 0.1</i>	38 56.99	+ 1.44	58.43	N	<i>b + 0.5</i> <i>a - 29.0</i>	55 24.60	+ 1.68	26.28	27.85				
	4384	+ 36 26	N	<i>s</i>	44 32.59	+ 1.44	34.03	N	<i>s</i>	13 1 0.24	+ 1.75	1.99	27.96				
	4390	+ 28 15	N	<i>Q + 1.38</i>	45 50.36	+ 1.44	51.80	N	<i>Q + 1.59</i>	2 18.07	+ 1.63	19.70	27.90				
	4393	+ 28 11	N		46 34.13	+ 1.44	35.57	N		3 1 86	+ 1.63	3 49	27.92				
	4351	+ 18 3	S		37 24.59	+ 1.43	26.02	S		12 53 52.56	+ 1.51	54 07	28.05				
	4367	+ 11 36	S		40 37.66	+ 1.43	39.09	S		57 5 55	+ 1.44	6.99	27.90				
	4373	- 3 2	S		42 9.38	+ 1.42	10.80	S		58 37.46	+ 1.29	38.75	27.95				
	4393	+ 28 11	S		46 33.95	+ 1.44	35.39	S		13 3 1.78	+ 1.63	3.41	28.02				
	4403	+ 17 28	S		48 19.20	+ 1.43	20.63	S		4 47.05	+ 1.50	48.55	27.92				
Apr. 4	4433	+ 40 46	N	<i>I. P. W.</i>	12 52 43.84	- 1.31	42.53	N	<i>I. P. W.</i>	13 9 11.89	- 1.36	10.53	16 28.00				
	4438	+ 41 28	N	<i>c - 0.8</i> <i>d</i>	54 35.53	- 1.31	34.22	N	<i>c + 0.8</i> <i>d</i>	11 3.55	- 1.35	2.20	27.98				
	4479	+ 37 39	N	<i>b + 3.0</i> <i>a + 0.1</i>	13 2 54.89	- 1.32	53.57	N	<i>b + 0.5</i> <i>a - 29.0</i>	19 23.05	- 1.41	21.64	28.07				
	4536	+ 37 47	N	<i>s</i>	13 53.64	- 1.32	52.32	N	<i>s</i>	30 21.66	- 1.41	20.25	27.93				
	4444	+ 14 17	S	<i>Q - 1.38</i>	12 55 47.69	- 1.33	46.36	S	<i>Q - 1.59</i>	12 16.00	- 1.71	14 29	27.93				
	4499	+ 14 24	S		13 7 1.77	- 1.33	0.44	S		23 30.11	- 1.71	28.40	27.96				
	4513	+ 24 50	S		9 38.65	- 1.33	37.32	S		26 6.85	- 1.59	5.26	27.94				
	4526	+ 24 58	S		11 34.89	- 1.33	33.56	S		28 3.07	- 1.59	1.48	27.92				

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



Arc	Approximate Difference of Longitude	Intervals between Nights of Observations	Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz. :									
			$\alpha$ , Corrections for the Intervals between Nights of Observations, and									
			$\beta$ , Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities $\alpha$ .									
			$\alpha$ at E Station for		$\alpha$ at W Station for		Astronomical Dates of Observations	$\beta$ for		Correction to Observed Difference of Times of Transit for		
E Clock	W Clock	E Clock	W Clock	E Clock	W Clock	E Clock		W Clock				
Jalpaiguri (E), and Fyzabad (W)	26 <sup>m</sup> 23"	1882-83	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	1882-83	<i>s</i>	<i>s</i>	<i>s</i>	<i>s</i>	
		Dec. 2 to 4	+ 1'85	+ 6'22	+ 1'34	+ 5'72	Dec. 2	+ 0'033	+ 0'124	+ 0'015	+ 0'055	
		" 4 " 5	+ 0'86	+ 2'78	+ 1'16	+ 3'07	" 4	+ '039	+ '123	+ '017	+ '054	
		" 5 " 6	+ 1'52	+ 3'32	+ 1'40	+ 3'16	" 5	+ '051	+ '128	+ '022	+ '056	
		" 6 " 7	+ 1'14	+ 3'06	+ 1'19	+ 3'13	" 6	+ '055	+ '132	+ '024	+ '058	
		" 7 " 8	+ 1'66	+ 3'57	+ 1'61	+ 3'48	" 7	+ '058	+ '138	+ '026	+ '061	
		" 8 " 9	+ 1'18	+ 3'12	+ 1'20	+ 3'24	" 8	+ '059	+ '140	+ '026	+ '062	
		" 9 " 11	+ 3'04	+ 6'95	+ 2'95	+ 6'91	" 9	+ '054	+ '136	+ '024	+ '060	
		.....	...	...	...	...	" 11	+ '062	+ '144	+ '027	+ '063	
Jalpaiguri (E), and Calcutta (W)	1 <sup>m</sup> 30"	Dec. 21 to 26	+ 12'16	+ 10'06	+ 12'76	+ 10'69	Dec. 21	+ 0'104	+ 0'086	+ 0'003	+ 0'002	
		" 26 " 27	+ 3'25	+ 2'58	+ 2'73	+ 1'95	" 26	+ '121	+ '093	+ '003	+ '002	
		" 27 " 28	+ 2'60	+ 1'98	+ 3'05	+ 2'47	" 27	+ '121	+ '094	+ '003	+ '002	
		" 28 " 29	+ 3'04	+ 2'59	+ 2'63	+ 2'11	" 28	+ '118	+ '094	+ '003	+ '002	
		" 29 " Jan. 2	+ 12'41	+ 9'34	+ 12'90	+ 9'89	" 29	+ '121	+ '098	+ '003	+ '003	
		.....	...	...	...	...	Jan. 2	+ '132	+ '100	+ '003	+ '002	
Chittagong (E), and Jalpaiguri (W)	12 <sup>m</sup> 25"	Jan. 12 to 13	+ 1'17	+ 3'78	+ 1'64	+ 4'18	Jan. 12	+ 0'059	+ 0'166	+ 0'012	+ 0'034	
		" 13 " 14	+ 1'51	+ 4'16	+ 1'18	+ 3'89	" 13	+ '057	+ '167	+ '012	+ '035	
		" 14 " 15	+ 1'54	+ 4'08	+ 1'84	+ 4'25	" 14	+ '063	+ '171	+ '013	+ '035	
		" 15 " 17	+ 3'40	+ 8'32	+ 3'12	+ 8'09	" 15	+ '070	+ '173	+ '014	+ '036	
		" 17 " 18	+ 1'68	+ 4'02	+ 2'12	+ 4'45	" 17	+ '075	+ '175	+ '016	+ '036	
		.....	...	...	...	...	" 18	+ '079	+ '176	+ '016	+ '036	
Chittagong (E), and Calcutta (W)	13 <sup>m</sup> 55"	Jan. 23 to 24	+ 1'996	- 1'314	+ 1'847	- 1'566	Jan. 23	+ 0'080	- 0'060	+ 0'019	- 0'014	
		" 24 " 25	+ 2'203	- 1'442	+ 2'324	- 1'331	" 24	+ '087	- '059	+ '020	- '014	
		" 25 " 26	+ 2'536	- 1'008	+ 2'084	- 1'388	" 25	+ '095	- '054	+ '022	- '013	
		" 26 " 28	+ 4'633	- 1'808	+ 5'104	- 1'378	" 26	+ '098	- '044	+ '023	- '010	
		" 28 " 29	+ 2'787	+ 0'215	+ 2'403	- 0'191	" 28	+ '106	- '011	+ '025	- '003	
		" 29 " 30	+ 2'823	+ 0'159	+ 3'060	+ 0'392	" 29	+ '115	+ '006	+ '027	+ '001	
		.....	...	...	...	...	" 30	+ '123	+ '012	+ '029	+ '003	

TABLE XI. DEDUCTION OF CLOCK RATE CORRECTIONS FROM THE OBSERVATIONS OF TRANSITS. 381

Arc	Approximate Difference of Longitude	Intervals between Nights of Observations	Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz.:								
			a, Corrections for the Intervals between Nights of Observations, and								
			β, Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities a.								
			a at E Station for		a at W Station for		Astronomical Dates of Observations	β for		Correction to Observed Difference of Times of Transit for	
E Clock	W Clock	E Clock	W Clock	E Clock	W Clock	E Clock		W Clock			
Calcutta (E), and Fyzabad (W)	24 <sup>m</sup> 53 <sup>s</sup>	1883	s	s	s	s	1883	s	s	s	s
		Feb. 8 to 9	+ 0.94	...	+ 1.22	- 3.94	Feb. 8	+ 0.045	- 0.164	+ 0.019	- 0.068
		" 9 " 10	+ 1.12	...	+ 0.90	- 4.10	" 9	+ .044	- .168	+ .018	- .070
		" 10 " 11	+ 0.60	- 3.92	+ 0.84	- 3.81	" 10	+ .036	- .166	+ .015	- .069
		" 11 " 13	+ 0.79	- 6.71	+ 0.60	- 6.76	" 11	+ .025	- .154	+ .010	- .064
		" 13 " 14	+ 0.27	- 3.34	+ 0.45	- 3.21	" 13	+ .015	- .138	+ .006	- .057
		.....	...	...	...	...	" 14	+ .015	- .136	+ .006	- .056
Calcutta (E), and Jubbulpore (W)	33 <sup>m</sup> 38 <sup>s</sup>	Feb. 22 to 23	+ 1.01	+ 4.21	+ 0.80	+ 4.03	Feb. 22	+ 0.038	+ 0.172	+ 0.021	+ 0.096
		" 23 " 24	+ 1.12	+ 4.08	+ 1.26	+ 4.25	" 23	+ .044	+ .173	+ .025	+ .097
		" 24 " 28	+ 5.56	*	+ 5.42	*	" 24	+ .051	+ .174	+ .029	+ .097
		" 28 " Mar. 2	+ 2.33	+ 8.44	+ 2.46	+ 8.69	" 28	+ .052	+ .178	+ .029	+ .100
		Mar. 2 " 3	+ 1.11	+ 4.33	+ 0.75	+ 4.01	Mar. 2	+ .042	+ .175	+ .024	+ .098
		.....	...	...	...	...	" 3	+ .039	+ .174	+ .022	+ .098
Fyzabad (E), and Jubbulpore (W)	8 <sup>m</sup> 45 <sup>s</sup>	Mar. 14 to 15	- 6.07	+ 1.53	- 5.78	+ 1.81	Mar. 14	- 0.247	+ 0.070	- 0.036	+ 0.010
		" 15 " 16	- 5.78	+ 1.80	- 5.98	+ 1.54	" 15	- .246	+ .070	- .036	+ .010
		" 16 " 17	- 5.63	+ 2.05	- 5.46	+ 2.22	" 16	- .238	+ .080	- .035	+ .012
		" 17 " 18	- 5.41	+ 2.29	- 5.67	+ 2.05	" 17	- .231	+ .090	- .034	+ .013
		" 18 " 19	- 6.05	+ 1.35	- 5.68	+ 1.71	" 18	- .238	+ .077	- .035	+ .011
		" 19 " 20	- 5.46	+ 2.14	- 5.86	+ 1.72	" 19	- .241	+ .072	- .035	+ .011
		.....	...	...	...	...	" 20	- .236	+ .080	- .034	+ .012
Fyzabad (E), and Agra (W)	16 <sup>m</sup> 28 <sup>s</sup>	Mar. 28 to 29	- 5.22	- 6.13	- 5.28	- 6.10	Mar. 28	- 0.219	- 0.255	- 0.060	- 0.070
		" 29 " 30	- 5.35	- 6.23	- 5.39	- 6.42	" 29	- .221	- .260	- .061	- .071
		" 30 " 31	- 5.54	- 6.16	- 5.29	- 5.89	" 30	- .225	- .258	- .062	- .071
		" 31 " Apr. 3	- 15.84	- 18.56	- 16.22	- 18.91	" 31	- .225	- .253	- .062	- .069
		Apr. 3 " 4	- 5.40	- 6.66	- 5.09	- 6.26	Apr. 3	- .221	- .265	- .061	- .073
		.....	...	...	...	...	" 4	- .219	- .269	- .060	- .074

\* W Clock was regulated on the 25th February.

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

JALPAIGURI (E), AND FYZABAD (W).								
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1882		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
December 2	<i>I. P. E.</i>	...	..	...	...	26 22'533	26 22'818	
" "	"	...	...	...	...	...	22'863	
" 4	<i>I. P. W.</i>	4 51 29	- 1 52'756	28 15'944	26 23'188	23'047	23'364	
" "	"	5 11 44	52'772	15'980	23'208	23'091	23'339	
" 5	<i>I. P. E.</i>	4 51 29	54'849	17'800	22'951	22'797	23'074	
" "	"	5 11 43	54'990	17'824	22'834	22'757	23'027	
" 6	<i>I. P. W.</i>	4 51 14	56'592	19'688	23'096	22'832	23'130	
" "	"	5 12 23	56'627	19'717	23'090	22'978	23'243	
" 7	<i>I. P. E.</i>	4 50 26	58'624	21'605	22'981	22'797	23'133	
" "	"	5 12 22	58'641	21'640	22'999	22'904	23'107	
" 8	<i>I. P. W.</i>	4 50 24	2 0'453	23'501	23'048	22'862	23'256	
" "	"	5 12 21	0'486	23'531	23'045	22'933	23'183	
" 9	<i>I. P. E.</i>	4 50 23	2'624	25'519	22'895	22'816	23'076	
" "	"	5 12 19	2'607	25'552	22'945	22'873	23'092	
" 11	<i>I. P. W.</i>	4 50 20	6'410	29'380	22'970	22'937	23'125	
" "	"	5 12 16	6'320	29'416	23'096	23'003	23'135	
Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations					26 22'934	26 22'751	26 23'024	
" " <i>I. P. W.</i> "					23'093	22'960	23'222	
General Means					26 23'013	26 22'856	26 23'123	
Whence ... .. $\delta L_N = 26 23'013$						$\delta L_N = 26 22'990$		
Correction for Relative Personal Equation, $\frac{3(S_N - C_N) + 4(S_N - H_N)}{7}$ ... = - 0'009						$\frac{(S_N - C_N) + (S_N - H_N)}{2} = - 0'013$		
$\Delta L_N = 26 23'004$						$\Delta L_N = 26 22'977$		
Again ... .. $\delta L_S = 26 22'961$						$\delta L_S = 26 22'942$		
Correction for Relative Personal Equation, $\frac{3(S_S - C_S) + 4(S_S - H_S)}{7}$ ... = + 0'024						$\frac{(S_S - C_S) + (S_S - H_S)}{2} = + 0'022$		
$\Delta L_S = 26 22'985$						$\Delta L_S = 26 22'964$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 26 22'995$						$\Delta L = 26 22'971$		
$\rho = + 0'114$						$\rho = + 0'134$		

NOTE.—Lieut.-Colonel Campbell observed at W on December 2nd, 4th, 5th and 7th. Major Heavyside observed at W on December 6th, 8th, 9th and 11th. Major Strahan observed at E throughout.

AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

JALPAIGURI (E), AND CALCUTTA (W).									
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock			
		Epoch by E Clock T <sub>E</sub>	Corrected Difference of Observed Times at Epoch T <sub>E</sub> Reduced to Stars of North Aspect M <sub>N</sub>	Deduced Clock Difference D at Epoch T <sub>E</sub>	Apparent Difference of Longitude by Stars of North Aspect δ L <sub>N</sub> = D + M <sub>N</sub>	Apparent Difference of Longitude by Stars of North Aspect by Observations with			
						E Clock = δ L <sub>N</sub> - ρ	W Clock = δ L <sub>N</sub> + ρ		
1882-83		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
December 21	<i>I. P. W.</i>	5 18 33	+ 0 27.683	1 2.937	1 30.620	1 30.542	1 30.561		
" "	"	33 51	27.667	2.936	30.603	30.542	30.638		
" 26	<i>I. P. E.</i>	16 55	29.098	0.822	29.920	29.858	29.916		
" "	"	31 21	29.125	0.819	29.944	29.925	30.026		
" 27	<i>I. P. W.</i>	17 41	30.357	0.141	30.498	30.528	30.604		
" "	"	33 58	30.429	0.132	30.561	30.469	30.564		
" 28	<i>I. P. E.</i>	17 38	30.459	0 59.515	29.974	29.964	30.097		
" "	"	34 46	30.468	59.514	29.982	30.067	30.096		
" 29	<i>I. P. W.</i>	17 35	31.419	59.025	30.444	30.483	30.585		
" "	"	33 52	31.419	59.018	30.437	30.437	30.574		
January 2	<i>I. P. E.</i>	17 23	33.921	56.041	29.962	29.927	29.982		
" "	"	33 40	33.888	56.038	29.926	29.980	30.038		
Mean of daily mean values for instrumental position <i>I. P. W.</i> at both stations					1 30.527	1 30.500	1 30.588		
" " <i>I. P. E.</i> "					29.951	29.954	30.026		
General Means					1 30.239	1 30.227	1 30.307		
Whence ... ..					δ L <sub>N</sub> = 1 30.239	δ L <sub>N</sub> = 1 30.267			
Correction for Relative Personal Equation,					S <sub>N</sub> - H <sub>N</sub> = + 0.017	S <sub>N</sub> - H <sub>N</sub> = + 0.017			
					Δ L <sub>N</sub> = 1 30.256	Δ L <sub>N</sub> = 1 30.284			
Again ... ..					δ L <sub>S</sub> = 1 30.238	δ L <sub>S</sub> = 1 30.266			
Correction for Relative Personal Equation,					S <sub>S</sub> - H <sub>S</sub> = + 0.035	S <sub>S</sub> - H <sub>S</sub> = + 0.035			
					Δ L <sub>S</sub> = 1 30.273	Δ L <sub>S</sub> = 1 30.301			
Finally Δ L = ½ (Δ L <sub>N</sub> + Δ L <sub>S</sub> )					= 1 30.265	Δ L = 1 30.292			
ρ = + 0.050						ρ = + 0.039			

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

CHITTAGONG (E), AND JALPAIGURI (W).								
Astronomical Date		In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock	
			Epoch by E Clock T <sub>E</sub>	Corrected Difference of Observed Times at Epoch T <sub>E</sub> Reduced to Stars of North Aspect M <sub>N</sub>	Deduced Clock Difference D at Epoch T <sub>E</sub>	Apparent Difference of Longitude by Stars of North Aspect δ L <sub>N</sub> = D + M <sub>N</sub>	Apparent Difference of Longitude by Stars of North Aspect by Observations with	
							E Clock = δ L <sub>N</sub> - ρ	W Clock = δ L <sub>N</sub> + ρ
1883			<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>
January	12	<i>I. P. E.</i>	7 27 21	- 0 36.536	13 1.738	12 25.202	12 25.042	12 25.209
"	"	"	51 59	36.676	1.769	25.093	25.040	25.196
"	13	<i>I. P. W.</i>	27 20	39.578	4.260	24.682	24.557	24.712
"	"	"	51 12	39.652	4.309	24.657	24.546	24.877
"	14	<i>I. P. E.</i>	27 6	41.943	6.927	24.984	24.887	25.033
"	"	"	51 11	42.000	6.962	24.962	24.902	25.132
"	15	<i>I. P. W.</i>	27 5	44.720	9.489	24.769	24.573	24.937
"	"	"	51 9	44.768	9.530	24.762	24.601	24.859
"	17	<i>I. P. E.</i>	27 1	49.442	14.429	24.987	24.884	25.126
"	"	"	52 8	49.326	14.467	25.141	24.864	25.168
"	18	<i>I. P. W.</i>	26 59	52.227	16.786	24.559	24.441	24.678
"	"	"	51 4	52.362	16.831	24.469	24.399	24.736
Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations						12 25.062	12 24.936	12 25.144
" " " <i>I. P. W.</i> "						24.650	24.520	24.800
General Means						12 24.856	12 24.728	12 24.972
Whence ... ..						δ L <sub>N</sub> = 12 24.856	δ L <sub>N</sub> = 12 24.850	
Correction for Relative Personal Equation, H <sub>N</sub> - S <sub>N</sub>						= - 0.017	H <sub>N</sub> - S <sub>N</sub> = - 0.017	
						Δ L <sub>N</sub> = 12 24.839	Δ L <sub>N</sub> = 12 24.833	
Again ... ..						δ L <sub>S</sub> = 12 24.836	δ L <sub>S</sub> = 12 24.830	
Correction for Relative Personal Equation, H <sub>S</sub> - S <sub>S</sub>						= - 0.035	H <sub>S</sub> - S <sub>S</sub> = - 0.035	
						Δ L <sub>S</sub> = 12 24.801	Δ L <sub>S</sub> = 12 24.795	
Finally Δ L = ½ (Δ L <sub>N</sub> + Δ L <sub>S</sub> )						= 12 24.820	Δ L = 12 24.814	
ρ = + 0.104							ρ = + 0.122	

AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

CHITTAGONG (E), AND CALCUTTA (W).								
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1883		$h \quad m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	
January 23	<i>I. P. W.</i>	8 0 26	- 0 4'776	13 59'698	13 54'922	13 54'986	13 54'961	
" "	"	17 34	4'764	59'670	54'906	54'884	54'933	
" 24	<i>I. P. E.</i>	2 10	1'114	56'271	55'157	55'030	55'170	
" "	"	19 4	1'080	56'228	55'148	55'085	55'199	
" 25	<i>I. P. W.</i>	2 5	+ 2'309	52'650	54'959	54'952	55'082	
" "	"	19 24	2'367	52'615	54'982	54'920	55'053	
" 26	<i>I. P. E.</i>	2 5	6'195	49'125	55'320	55'331	55'436	
" "	"	19 37	6'300	49'089	55'389	55'449	55'478	
" 28	<i>I. P. W.</i>	1 58	12'300	42'642	54'942	54'907	55'040	
" "	"	19 32	12'335	42'606	54'941	54'936	55'015	
" 29	<i>I. P. E.</i>	1 55	15'393	40'026	55'419	55'294	55'449	
" "	"	19 30	15'379	39'993	55'372	55'321	55'437	
" 30	<i>I. P. W.</i>	1 52	17'708	37'421	55'129	55'104	55'221	
" "	"	19 27	17'785	37'386	55'171	55'045	55'190	
Mean of daily mean values for instrumental position <i>I. P. W.</i> at both stations ...					13 54'994	13 54'967	13 55'062	
" " " <i>I. P. E.</i> " ...					55'301	55'252	55'362	
General Means ...					13 55'148	13 55'110	13 55'212	
Whence ... .. $\delta L_N = 13 55'148$					$\delta L_N = 13 55'161$			
Correction for Relative Personal Equation, $H_N - S_N = - 0'017$					$H_N - S_N = - 0'017$			
$\Delta L_N = 13 55'131$					$\Delta L_N = 13 55'144$			
Again ... .. $\delta L_S = 13 55'138$					$\delta L_S = 13 55'151$			
Correction for Relative Personal Equation, $H_S - S_S = - 0'035$					$H_S - S_S = - 0'035$			
$\Delta L_S = 13 55'103$					$\Delta L_S = 13 55'116$			
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 13 55'117$					$\Delta L = 13 55'130$			
$\rho = + 0'071$					$\rho = + 0'051$			

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

CALCUTTA (E), AND FYZABAD (W).								
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference D at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1883		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
February 8	<i>I. P. E.</i>	9 41 32	+0 50'747	24 2'096	24 52'843	24 52'869	24 52'887	
" "	"	10 1 38	50'840	2'021	52'861	52'776	52'922	
" 9	<i>I. P. W.</i>	9 38 55	55'632	23 56'919	52'551	52'524	...	
" "	"	...	...	...	...	52'539	...	
" 10	<i>I. P. E.</i>	9 37 18	1 0'813	51'992	52'805	52'722	52'881	
" "	"	10 1 11	0'892	51'913	52 805	52'777	52'790	
" 11	<i>I. P. W.</i>	9 41 30	5'134	47'448	52'582	52'524	52'697	
" "	"	10 1 36	5'179	47'381	52'560	52'480	52'703	
" 13	<i>I. P. E.</i>	9 41 29	12'692	40'018	52'710	52'723	52'804	
" "	"	10 1 35	12'805	39'967	52'772	52'670	52'754	
" 14	<i>I. P. W.</i>	9 41 28	16'183	36'391	52'574	52'482	52 589	
" "	"	10 1 35	16'200	36'342	52'542	52'532	52'662	
Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations					24 52'799	24 52'756	24 52'840	
" " <i>I. P. W.</i> "					52'560	52'514	52'663	
General Means					24 52'680	24 52'635	24 52'751	
Whence ... ..					$\delta L_N = 24 52'680$	$\delta L_N = 24 52'693$		
Correction for Relative Personal Equation, $H_N - S_N = - 0'017$					$\Delta L_N = 24 52'663$	$H_N - S_N = - 0'017$		
Again ... ..					$\delta L_S = 24 52'685$	$\delta L_S = 24 52'698$		
Correction for Relative Personal Equation, $H_S - S_S = - 0'035$					$\Delta L_S = 24 52'650$	$H_S - S_S = - 0'035$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 24 52'656$					$\rho = + 0'075$	$\Delta L = 24 52'670$		
						$\rho = + 0'057$		

AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

CALCUTTA (E), AND JUBBULPORE (W).								
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1883		$h \quad m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	$m \quad s$	
February 22	<i>I. P. W.</i>	10 0 17	— 0 7'067	33 45'095	33 37'428	33 37'407	33 37'584	
" "	"	16 18	7'600	45'135	37'535	37'425	37'641	
" 23	<i>I. P. E.</i>	0 16	10'541	48'282	37'741	37'645	37'766	
" "	"	16 17	10'535	48'319	37'784	37'684	37'847	
" 24	<i>I. P. W.</i>	0 15	13'676	51'285	37'609	37'550	37'734	
" "	"	17 49	13'816	51'328	37'512	37'488	37'543	
" 28	<i>I. P. E.</i>	0 9	29'231	34 7'025	37'794	37'668	37'899	
" "	"	16 10	29'284	7'064	37'780	37'657	37'911	
March 2	<i>I. P. W.</i>	0 7	35'771	13'295	37'524	37'563	37'595	
" "	"	16 8	35'662	13'326	37'664	37'488	37'682	
" 3	<i>I. P. E.</i>	...	...	...	...	...	37'892	
" "	"	18 13	38'608	16'492	37'884	37'858	38'060	
Mean of daily mean values for instrumental position <i>I. P. W.</i> at both stations					33 37'545	33 37'497	33 37'630	
" " " <i>I. P. E.</i> "					37'811	37'728	37'896	
General Means					33 37'678	33 37'613	33 37'763	
Whence ... ..					$\delta L_N = 33 37'678$	$\delta L_N = 33 37'688$		
Correction for Relative Personal Equation, $H_N - S_N = - 0'017$					$\Delta L_N = 33 37'661$	$H_N - S_N = - 0'017$ $\Delta L_N = 33 37'671$		
Again ... ..					$\delta L_S = 33 37'683$	$\delta L_S = 33 37'693$		
Correction for Relative Personal Equation, $H_S - S_S = - 0'035$					$\Delta L_S = 33 37'648$	$H_S - S_S = - 0'035$ $\Delta L_S = 33 37'658$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 33 37'655$					$\Delta L = 33 37'665$			
$\rho = + 0'091$					$\rho = + 0'075$			



TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

FYZABAD (E), AND JUBBULPORE (W).									
Astronomical  Date		In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
			Epoch by E Clock T <sub>E</sub>	Corrected Difference of Observed Times at Epoch T <sub>E</sub> Reduced to Stars of North Aspect M <sub>N</sub>	Deduced Clock Difference D at Epoch T <sub>E</sub>	Apparent Difference of Longitude by Stars of North Aspect δL <sub>N</sub> = D + M <sub>N</sub>	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
							E Clock = δL <sub>N</sub> - ρ	W Clock = δL <sub>N</sub> + ρ	
1883			h m s	m s	m s	m s	m s	m s	
March	14	I. P. E.	10 48 27	- 0 24'07.1	9 9'17.2	8 45'10.1	8 45'08.3	8 45'11.0	
"	"	"	11 14 58	24'22.3	9'32.0	45'09.7	45'02.6	45'09.4	
"	15	I. P. W.	10 50 39	32'04.8	16'84.6	44'79.8	44'70.6	44'83.0	
"	"	"	11 13 4	32'17.3	16'95.8	44'78.5	44'78.6	44'86.1	
"	16	I. P. E.	10 50 44	39'34.6	24'35.2	45'00.6	44'96.7	45'11.1	
"	"	"	11 13 9	39'41.2	24'46.4	45'05.2	44'97.1	45'08.9	
"	17	I. P. W.	10 50 50	47'13.2	32'07.5	44'94.3	44'86.0	44'91.8	
"	"	"	11 10 40	47'29.6	32'17.2	44'87.6	44'75.9	44'93.0	
"	18	I. P. E.	10 50 55	54'64.9	39'78.0	45'13.1	45'09.8	45'24.4	
"	"	"	11 12 21	54'73.3	39'89.0	45'15.7	45'10.8	45'15.7	
"	19	I. P. W.	10 51 1	1 2'48.3	47'25.2	44'76.9	44'66.0	44'77.9	
"	"	"	11 12 27	2'62.6	47'36.2	44'73.6	44'73.6	44'82.2	
"	20	I. P. E.	10 51 6	9'61.7	54'75.7	45'14.0	45'11.0	45'12.5	
"	"	"	11 13 31	9'66.0	54'87.1	45'21.1	45'10.3	45'22.9	
Mean of daily mean values for instrumental position I. P. E. at both stations ...						8 45'11.2	8 45'05.8	8 45'14.5	
" " I. P. W. " ...						44'81.8	44'75.1	44'85.7	
General Means ...						8 44'96.5	8 44'90.5	8 45'00.1	
Whence ... .. δL <sub>N</sub> = 8 44'96.5						δL <sub>N</sub> = 8 44'95.3			
Correction for Relative Personal Equation, H <sub>N</sub> - S <sub>N</sub> = - 0'01.7						H <sub>N</sub> - S <sub>N</sub> = - 0'01.7			
ΔL <sub>N</sub> = 8 44'94.8						ΔL <sub>N</sub> = 8 44'93.6			
Again ... .. δL <sub>S</sub> = 8 44'96.2						δL <sub>S</sub> = 8 44'95.0			
Correction for Relative Personal Equation, H <sub>S</sub> - S <sub>S</sub> = - 0'03.5						H <sub>S</sub> - S <sub>S</sub> = - 0'03.5			
ΔL <sub>S</sub> = 8 44'92.7						ΔL <sub>S</sub> = 8 44'91.5			
Finally ΔL = ½ (ΔL <sub>N</sub> + ΔL <sub>S</sub> ) = 8 44'93.8						ΔL = 8 44'92.5			
ρ = + 0'04.8						ρ = + 0'04.7			

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ 

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AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1882-83.

FYZABAD (E), AND AGRA (W).								
Astronomical Date	In- strumental Position at both Stations	By Clock Comparisons				By Transits at both Stations with the same Clock		
		Epoch by E Clock $T_E$	Corrected Difference of Observed Times at Epoch $T_E$ Reduced to Stars of North Aspect $M_N$	Deduced Clock Difference $D$ at Epoch $T_E$	Apparent Difference of Longitude by Stars of North Aspect $\delta L_N = D + M_N$	Apparent Difference of Longitude by Stars of North Aspect by Observations with		
						E Clock $= \delta L_N - \rho$	W Clock $= \delta L_N + \rho$	
1883		<i>h m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	<i>m s</i>	
March 28	<i>I. P. E.</i>	11 58 32	+ 0 20.521	16 7.479	16 28.000	16 27.934	16 28.046	
" "	"	12 17 23	20.579	7.467	28.046	27.907	28.059	
" 29	<i>I. P. W.</i>	11 59 58	21.275	6.714	27.989	27.976	...	
" "	"	12 18 24	21.229	6.692	27.921	27.935	27.994	
" 30	<i>I. P. E.</i>	11 58 10	22.335	5.740	28.075	28.015	28.203	
" "	"	12 17 56	22.414	5.738	28.152	28.006	28.204	
" 31	<i>I. P. W.</i>	11 57 0	22.696	5.174	27.870	27.737	27.907	
" "	"	12 17 39	22.692	5.159	27.851	27.746	27.931	
April 3	<i>I. P. E.</i>	11 58 56	25.726	2.483	28.209	28.109	28.221	
" "	"	12 17 55	25.827	2.453	28.280	28.171	28.362	
" 4	<i>I. P. W.</i>	11 59 5	26.573	1.325	27.898	27.829	27.856	
" "	"	12 18 1	26.551	1.301	27.852	27.794	27.876	
Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations					16 28.127	16 28.024	16 28.183	
" " <i>I. P. W.</i> "					27.897	27.836	27.926	
General Means					16 28.012	16 27.930	16 28.054	
Whence ... .. $\delta L_N = 16 28.012$						$\delta L_N = 16 27.992$		
Correction for Relative Personal Equation, $H_N - S_N = + 0.007$						$H_N - S_N = + 0.007$		
					$\Delta L_N = 16 28.019$	$\Delta L_N = 16 27.999$		
Again ... .. $\delta L_S = 16 28.044$						$\delta L_S = 16 28.024$		
Correction for Relative Personal Equation, $H_S - S_S = - 0.058$						$H_S - S_S = - 0.058$		
					$\Delta L_S = 16 27.986$	$\Delta L_S = 16 27.966$		
Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 16 28.003$						$\Delta L = 16 27.983$		
$\rho = + 0.038$						$\rho = + 0.062$		



# **ELECTRO-TELEGRAPHIC LONGITUDES**

**1883-84.**

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**INDIAN ARCS**

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**ABSTRACT OF THE OBSERVATIONS**

**AND**

**REDUCTION OF THE RESULTS.**

# N O T E .

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The Explanation of Table I, given on pages 2 and 176, applies equally to the Observations of 1883-84, in which the same telescopes were used with the same micrometers and the same wire systems.

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 393

| Astronl.<br>Date | Station | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          | Astronl.<br>Date | Station | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          |
|------------------|---------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|------------------|---------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|
|                  |         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |                  |         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |
| 1883             |         |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> | 1883             |         |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> |
| Nov. 27          |         | <i>I. P. E.</i>               | 97'2           | 100'0          | - 2'8          | - 3'7    | 97'9     | - 0'7    | Nov. 27          |         | <i>I. P. E.</i>               | 17'8           | 20'0           | + 2'2          | + 1'4    | 16'7     | - 1'1    |
|                  |         |                               | 101'1          | 100'0          | + 1'1          | + 0'2*   | 99'0     | + 2'1*   |                  |         |                               | 17'7           | 20'0           | + 2'3          | + 1'5    | 14'6     | - 3'1    |
|                  |         |                               | 98'8           | 100'0          | - 1'2          | - 2'1    | 97'7     | + 1'1    |                  |         |                               |                |                |                |          |          |          |
| Dec. 8           |         | <i>I. P. W.</i>               | 100'2          | 100'0          | - 0'2          | - 1'1    | 97'4     | - 2'8    | Dec. 8           |         | <i>I. P. E.</i>               | 16'9           | 20'0           | + 3'1          | + 2'3    | 21'3     | + 4'4    |
|                  |         |                               | 99'3           | 100'0          | + 0'7          | - 0'2    | 99'1     | - 0'2    |                  |         |                               | 17'3           | 20'0           | + 2'7          | + 1'9    | 22'4     | + 5'1    |
|                  |         |                               |                |                |                |          | 98'0     | - 1'3    |                  |         |                               |                |                |                |          |          |          |
| " 9              |         | <i>I. P. W.</i>               | 98'7           | 100'0          | + 1'3          | + 0'4    | 95'6     | - 3'1    | " 9              |         | <i>I. P. W.</i>               | 13'0           | 20'0           | - 7'0          | - 7'8    | 10'6     | + 2'4    |
|                  |         |                               | 98'8           | 100'0          | + 1'2          | + 0'3    | 95'3     | - 3'5    |                  |         |                               | 13'6           | 20'0           | - 6'4          | - 7'2    | 11'1     | + 2'5    |
|                  |         |                               |                |                |                |          | 96'7     | - 2'1    |                  |         |                               |                |                |                |          |          |          |
| " 10             |         | <i>I. P. E.</i>               | 97'0           | 100'0          | - 3'0          | - 3'9    | 99'7     | - 2'7    | " 10             |         | <i>I. P. W.</i>               | 15'1           | 15'0           | + 0'1          | - 0'7    | 8'3      | + 6'8*   |
|                  |         |                               | 95'8           | 100'0          | - 4'2          | - 5'1    | 99'6     | - 3'8*   |                  |         |                               | 13'7           | 15'0           | - 1'3          | - 2'1    | 14'5     | - 0'8    |
|                  |         |                               |                |                |                |          | 100'0    | - 4'2    |                  |         |                               |                |                |                |          |          |          |
| " 11             |         | <i>I. P. E.</i>               | 95'6           | 100'0          | - 4'4          | - 5'3    | 95'5     | + 0'1    | " 11             |         | <i>I. P. E.</i>               | 17'1           | 15'0           | - 2'1          | - 2'9    | 22'6     | + 5'5    |
|                  |         |                               | 97'3           | 100'0          | - 2'7          | - 3'6    | 96'9     | + 0'4    |                  |         |                               | 15'0           | 15'0           | 0'0            | - 0'8    | 22'9     | + 7'9    |
|                  |         |                               |                |                |                |          | 96'9     | + 0'4    |                  |         |                               |                |                |                |          |          |          |
| " 12             |         | <i>I. P. W.</i>               | 94'9           | 100'0          | + 5'1          | + 4'2    | 99'8     | + 4'9    | " 12             |         | <i>I. P. E.</i>               | 15'4           | 15'0           | - 0'4          | - 1'2    | 13'2     | - 2'2    |
|                  |         |                               | 95'6           | 100'0          | + 4'4          | + 3'5    |          |          |                  |         |                               | 15'3           | 15'0           | - 0'3          | - 1'1    | 11'2     | - 4'1    |
|                  |         |                               | 96'8           | 100'0          | + 3'2          | + 2'3    | 98'6     | + 1'8    |                  |         |                               |                |                |                |          |          |          |
| " 13             |         | <i>I. P. W.</i>               | 96'3           | 100'0          | + 3'7          | + 2'8    | 98'8     | + 2'5    | " 13             |         | <i>I. P. W.</i>               | 14'3           | 15'0           | - 0'7          | - 1'5    | 15'8     | - 1'5    |
|                  |         |                               | 96'4           | 100'0          | + 3'6          | + 2'7    | 98'9     | + 2'5    |                  |         |                               | 13'6           | 15'0           | - 1'4          | - 2'2    | 15'7     | - 2'1    |
| " 14             |         | <i>I. P. E.</i>               | 97'0           | 95'0           | + 2'0          | + 1'1    | 94'6     | + 2'4    | " 14             |         | <i>I. P. W.</i>               | 14'6           | 15'0           | - 0'4          | - 1'2    | 17'5     | - 2'9    |
|                  |         |                               | 94'7           | 95'0           | - 0'3          | - 1'2    | 95'3     | - 0'6    |                  |         |                               | 18'5           | 15'0           | + 3'5          | + 2'7    | 17'3     | + 1'2    |
| Dec. 26          |         | <i>I. P. E.</i>               | 96'9           | 95'0           | + 1'9          | + 1'0    | 97'6     | - 0'7    | Dec. 26          |         | <i>I. P. E.</i>               | 27'3           | 30'0           | + 2'7          | + 1'8    | 27'8     | + 0'5    |
|                  |         |                               | 96'1           | 95'0           | + 1'1          | + 0'2    | 98'9     | - 2'8    |                  |         |                               | 25'1           | 30'0           | + 4'9          | + 4'0    | 26'6     | + 1'5    |
| " 27             |         | <i>I. P. W.</i>               | 98'7           | 100'0          | + 1'3          | + 0'4    | 95'2     | - 3'5    | " 27             |         | <i>I. P. E.</i>               | 27'0           | 30'0           | + 3'0          | + 2'1    | 25'7     | - 1'3    |
|                  |         |                               | 95'7           | 100'0          | + 4'3          | + 3'4    | 93'4     | - 2'3    |                  |         |                               | 25'9           | 30'0           | + 4'1          | + 3'2    | 25'6     | - 0'3    |
| " 28             |         | <i>I. P. W.</i>               | 97'0           | 95'0           | - 2'0          | - 2'9    | 95'0     | - 2'0    | " 28             |         | <i>I. P. W.</i>               | 23'7           | 25'0           | - 1'3          | - 2'2    | 24'9     | - 1'2    |
|                  |         |                               | 95'9           | 95'0           | - 0'9          | - 1'8    | 95'1     | - 0'8    |                  |         |                               | 24'7           | 25'0           | - 0'3          | - 1'2    | 24'1     | + 0'6    |
| " 29             |         | <i>I. P. E.</i>               | 96'7           | 95'0           | + 1'7          | + 0'8    | 96'8     | - 0'1    | " 29             |         | <i>I. P. W.</i>               | 24'8           | 25'0           | - 0'2          | - 1'1    | 24'0     | + 0'8    |
|                  |         |                               | 97'4           | 95'0           | + 2'4          | + 1'5    | 97'6     | - 0'2    |                  |         |                               | 24'3           | 25'0           | - 0'7          | - 1'6    | 24'3     | 0'0      |
| " 30             |         | <i>I. P. E.</i>               | 96'6           | 95'0           | + 1'6          | + 0'7    | 96'9     | - 0'3    | " 30             |         | <i>I. P. E.</i>               | 26'7           | 25'0           | - 1'7          | - 2'6    | 27'0     | + 0'3    |
|                  |         |                               | 96'6           | 95'0           | + 1'6          | + 0'7    | 98'2     | - 1'6    |                  |         |                               | 24'4           | 25'0           | + 0'6          | - 0'3    | 27'4     | + 3'0    |
| 1884             |         |                               |                |                |                |          |          |          | 1884             |         |                               |                |                |                |          |          |          |
| Jan. 2           |         | <i>I. P. W.</i>               | 95'0           | 95'0           | 0'0            | - 0'9    | 92'9     | - 2'1    | Jan. 2           |         | <i>I. P. E.</i>               | 25'5           | 25'0           | - 0'5          | - 1'4    | 24'9     | - 0'6    |
|                  |         |                               | 96'5           | 95'0           | - 1'5          | - 2'4    | 94'4     | - 2'1    |                  |         |                               | 26'0           | 25'0           | - 1'0          | - 1'9    | 23'9     | - 2'1    |
| " 3              |         | <i>I. P. W.</i>               | 95'8           | 95'0           | - 0'8          | - 1'7    | 95'6     | - 0'2    | " 3              |         | <i>I. P. W.</i>               | 25'1           | 25'0           | + 0'1          | - 0'8    | 26'4     | - 1'3    |
|                  |         |                               | 95'2           | 95'0           | - 0'2          | - 1'1    | 95'8     | + 0'6    |                  |         |                               | 24'9           | 25'0           | - 0'1          | - 1'0    | 25'9     | - 1'0    |
| " 4              |         | <i>I. P. E.</i>               | 98'8           | 95'0           | + 3'8          | + 2'9    | 98'7     | + 0'1    | " 4              |         | <i>I. P. W.</i>               | 24'7           | 25'0           | - 0'3          | - 1'2    | 26'3     | - 1'6    |
|                  |         |                               | 99'8           | 95'0           | + 4'8          | + 3'9    | 99'5     | + 0'3    |                  |         |                               | 25'6           | 25'0           | + 0'6          | - 0'3    | 25'4     | + 0'2    |

\* Half weight is assigned to this value.

| Astronl.<br>Date | Station                 | Instru-<br>mental<br>Position | Collimation    |                |                |       | Level |       | Astronl.<br>Date | Station                      | Instru-<br>mental<br>Position | Collimation    |                |                |       | Level |       |
|------------------|-------------------------|-------------------------------|----------------|----------------|----------------|-------|-------|-------|------------------|------------------------------|-------------------------------|----------------|----------------|----------------|-------|-------|-------|
|                  |                         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c     | M     | b     |                  |                              |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c     | M     | b     |
| 1884             | PROME (Telescope No. 1) |                               | d              | d              | d              | d     | d     | d     | 1884             | CHITTAGONG (Telescope No. 2) |                               | d              | d              | d              | d     | d     | d     |
| Jan. 21          |                         | I. P. W.                      | 98°1           | 100°0          | + 1°9          | + 1°0 | 94°2  | - 3°9 | Jan. 21          |                              | I. P. W.                      | 25°9           | 25°0           | + 0°9          | 0°0   | 25°8  | + 0°1 |
|                  |                         |                               |                |                |                |       | 93°7  | - 4°4 |                  |                              |                               | 24°7           | 25°0           | - 0°3          | - 1°2 | 23°6  | + 1°1 |
|                  |                         | I. P. E.                      |                |                |                |       | 102°2 | - 5°0 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 97°2           | 100°0          | - 2°8          | - 3°7 | 104°1 | - 6°9 |                  |                              |                               |                |                |                |       |       |       |
| " 22             |                         | I. P. E.                      | 96°3           | 95°0           | + 1°3          | + 0°4 | 99°9  | - 3°6 | " 22             |                              | I. P. E.                      | 27°4           | 25°0           | - 2°4          | - 3°3 | 31°9  | + 4°5 |
|                  |                         | I. P. W.                      |                |                |                |       | 94°1  | - 6°2 |                  |                              |                               | 25°6           | 25°0           | - 0°6          | - 1°5 | 31°7  | + 6°1 |
|                  |                         |                               | 100°3          | 95°0           | - 5°3          | - 6°2 | 94°6  | - 5°7 |                  |                              |                               |                |                |                |       |       |       |
| " 23             |                         | I. P. W.                      | 101°9          | 100°0          | - 1°9          | - 2°8 | 95°8  | - 6°1 | " 23             |                              | I. P. W.                      | 26°6           | 25°0           | + 1°6          | + 0°7 | 24°4  | + 2°2 |
|                  |                         | I. P. E.                      | 103°2          | 100°0          | + 3°2          | + 2°3 | 104°4 | - 1°2 |                  |                              |                               | 26°5           | 25°0           | + 1°5          | + 0°6 | 23°2  | + 3°3 |
|                  |                         |                               | 100°4          | 100°0          | + 0°4          | - 0°5 | 106°1 | - 5°7 |                  |                              |                               |                |                |                |       |       |       |
| " 24             |                         | I. P. E.                      | 101°0          | 100°0          | + 1°0          | + 0°1 | 97°1  | + 3°9 | " 24             |                              | I. P. E.                      | 26°0           | 25°0           | - 1°0          | - 1°9 | 34°1  | + 8°1 |
|                  |                         |                               |                |                |                |       | 94°8  | + 6°2 |                  |                              |                               | 26°3           | 25°0           | - 1°3          | - 2°2 | 33°3  | + 7°0 |
|                  |                         | I. P. W.                      | 102°4          | 100°0          | - 2°4          | - 3°3 | 107°4 | + 5°0 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 100°9          | 100°0          | - 0°9          | - 1°8 | 104°2 | + 3°3 |                  |                              |                               |                |                |                |       |       |       |
| " 25             |                         | I. P. W.                      | 103°0          | 100°0          | - 3°0          | - 3°9 | 106°1 | + 3°1 | " 25             |                              | I. P. W.                      | 26°9           | 25°0           | + 1°9          | + 1°0 | 23°3  | + 3°6 |
|                  |                         |                               |                |                |                |       | 106°1 | + 3°1 |                  |                              |                               | 26°6           | 25°0           | + 1°6          | + 0°7 | 23°5  | + 3°1 |
|                  |                         | I. P. E.                      | 102°4          | 100°0          | + 2°4          | + 1°5 | 98°0  | + 4°4 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 103°3          | 100°0          | + 3°3          | + 2°4 | 97°6  | + 5°7 |                  |                              |                               |                |                |                |       |       |       |
| " 26             |                         | I. P. E.                      | 98°4           | 100°0          | - 1°6          | - 2°5 | 94°5  | + 3°9 | " 26             |                              | I. P. E.                      | 25°7           | 25°0           | - 0°7          | - 1°6 | 25°6  | - 0°1 |
|                  |                         |                               | 98°8           | 100°0          | - 1°2          | - 2°1 | 96°7  | + 2°1 |                  |                              |                               | 25°5           | 25°0           | - 0°5          | - 1°4 | 24°9  | - 0°6 |
|                  |                         | I. P. W.                      | 99°0           | 100°0          | + 1°0          | + 0°1 | 99°9  | + 0°9 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 101°1          | 100°0          | - 1°1          | - 2°0 | 100°5 | - 0°6 |                  |                              |                               |                |                |                |       |       |       |
| " 27             |                         | I. P. W.                      | 102°6          | 100°0          | - 2°6          | - 3°5 | 97°1  | - 5°5 | " 27             |                              | I. P. W.                      | 25°0           | 25°0           | 0°0            | - 0°9 | 32°0  | - 7°0 |
|                  |                         | 100°6                         | 100°0          | - 0°6          | - 1°5          | 97°0  | - 3°6 |       |                  | 25°3                         | 25°0                          | + 0°3          | - 0°6          | 28°0           | - 2°7 |       |       |
| " 28             | I. P. E.                | 100°2                         | 100°0          | + 0°2          | - 0°7          | 109°0 | - 8°8 | " 28  |                  |                              |                               |                |                |                |       |       |       |
|                  |                         | 100°9                         | 100°0          | + 0°9          | 0°0            | 109°7 | - 8°8 |       |                  |                              |                               |                |                |                |       |       |       |
| " 29             | I. P. E.                | 100°1                         | 100°0          | + 0°1          | - 0°8          | 96°4  | + 3°7 | " 29  | I. P. E.         | 25°3                         | 25°0                          | - 0°3          | - 1°2          | 26°7           | + 1°4 |       |       |
|                  |                         | 99°5                          | 100°0          | - 0°5          | - 1°4          | 98°8  | + 0°7 |       |                  | 25°2                         | 25°0                          | - 0°2          | - 1°1          | 26°3           | + 1°1 |       |       |
| " 30             | I. P. W.                | 100°9                         | 100°0          | - 0°9          | - 1°8          | 105°9 | + 5°0 | " 30  |                  |                              |                               |                |                |                |       |       |       |
|                  |                         | 99°8                          | 100°0          | + 0°2          | - 0°7          | 105°9 | + 6°1 |       |                  |                              |                               |                |                |                |       |       |       |
| Feb. 8           | PROME (Telescope No. 1) | I. P. E.                      | 100°4          | 100°0          | + 0°4          | - 0°5 | 99°9  | + 0°5 | Feb. 8           | AKYAB (Telescope No. 2)      | I. P. E.                      | 21°6           | 22°0           | + 0°4          | - 0°5 | 22°3  | + 0°7 |
|                  |                         |                               | 101°8          | 100°0          | + 1°8          | + 0°9 | 101°9 | - 0°1 |                  |                              |                               | 21°5           | 22°0           | + 0°5          | - 0°4 | 20°9  | - 0°6 |
|                  |                         | I. P. W.                      | 101°4          | 100°0          | - 1°4          | - 2°3 | 100°3 | - 1°1 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 102°9          | 100°0          | - 2°9          | - 3°8 | 99°9  | - 3°0 |                  |                              |                               |                |                |                |       |       |       |
| " 9              |                         | I. P. W.                      | 101°8          | 100°0          | - 1°8          | - 2°7 | 100°8 | - 1°0 | " 9              |                              | I. P. W.                      | 20°3           | 22°0           | - 1°7          | - 2°6 | 23°3  | - 3°0 |
|                  |                         |                               | 102°1          | 100°0          | - 2°1          | - 3°0 | 100°5 | - 1°6 |                  |                              |                               | 19°7           | 22°0           | - 2°3          | - 3°2 | 23°2  | - 3°5 |
|                  |                         | I. P. E.                      | 99°3           | 100°0          | - 0°7          | - 1°6 | 104°1 | - 4°8 |                  |                              |                               |                |                |                |       |       |       |
|                  |                         |                               | 99°7           | 100°0          | - 0°3          | - 1°2 | 105°7 | - 6°0 |                  |                              |                               |                |                |                |       |       |       |

TABLE I. ABSTRACT OF DETERMINATIONS OF COLLIMATION AND LEVEL CORRECTION-CONSTANTS. 395

| Astronl.<br>Date | Station                    | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          | Astronl.<br>Date | Station                 | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          |
|------------------|----------------------------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|------------------|-------------------------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|
|                  |                            |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |                  |                         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |
| 1884             |                            |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> | 1884             |                         |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> |
| Feb. 12          | PROME (Telescope No. 1)    | I. P. E.                      | 101.8          | 100.0          | + 1.8          | + 0.9    | 95.6     | + 6.2    | Feb. 12          | AKYAB (Telescope No. 2) | I. P. E.                      | 21.8           | 22.0           | + 0.2          | - 0.7    | 20.3     | - 1.5    |
|                  |                            |                               | 101.1          | 100.0          | + 1.1          | + 0.2    | 96.6     | + 4.5    |                  |                         |                               | 22.4           | 22.0           | - 0.4          | - 1.3    | 19.7     | - 2.7    |
|                  |                            | I. P. W.                      | 99.7           | 100.0          | + 0.3          | - 0.6    | 105.3    | + 5.6    |                  |                         |                               |                |                |                |          |          |          |
|                  |                            |                               | 99.3           | 100.0          | + 0.7          | - 0.2    | 105.6    | + 6.3    |                  |                         |                               |                |                |                |          |          |          |
| " 13             |                            | I. P. W.                      | 99.9           | 100.0          | + 0.1          | - 0.8    | 94.4     | - 5.5    | " 13             |                         | I. P. W.                      | 19.9           | 22.0           | - 2.1          | - 3.0    | 25.5     | - 5.6    |
|                  |                            |                               | 100.9          | 100.0          | - 0.9          | - 1.8    | 94.8     | - 6.1    |                  |                         |                               | 21.2           | 22.0           | - 0.8          | - 1.7    | 26.4     | - 5.2    |
|                  |                            | I. P. E.                      | 100.6          | 100.0          | + 0.6          | - 0.3    | 111.9    | - 11.3   |                  |                         |                               |                |                |                |          |          |          |
|                  |                            |                               | 101.8          | 100.0          | + 1.8          | + 0.9    | 112.6    | - 10.8   |                  |                         |                               |                |                |                |          |          |          |
| Mar. 8           | MOULMEIN (Telescope No. 2) | I. P. E.                      | 39.9           | 40.0           | + 0.1          | - 0.8    | 41.1     | + 1.2    | Mar. 8           | PROME (Telescope No. 1) | I. P. W.                      |                |                |                |          | 99.0     | - 0.8    |
|                  |                            |                               |                |                |                |          |          |          |                  |                         |                               | 99.8           | 100.0          | + 0.2          | - 0.7    | 98.8     | - 1.0    |
| " 9              |                            | I. P. W.                      | 44.1           | 45.0           | - 0.9          | - 1.8    | 46.3     | - 2.2    | " 9              |                         | I. P. W.                      | 102.2          | 100.0          | - 2.2          | - 3.1    | 99.1     | - 3.1    |
|                  |                            |                               | 42.2           | 45.0           | - 2.8          | - 3.7    | 47.2     | - 5.0    |                  |                         |                               | 101.1          | 100.0          | - 1.1          | - 2.0    | 97.9     | - 3.2    |
| " 10             |                            | I. P. W.                      | 43.2           | 45.0           | - 1.8          | - 2.7    | 45.6     | - 2.4    | " 10             |                         | I. P. E.                      | 97.8           | 100.0          | - 2.2          | - 3.1    | 99.6     | - 1.8    |
|                  |                            | I. P. E.                      | 40.1           | 45.0           | + 4.9          | + 4.0    | 39.2     | - 0.9    |                  |                         |                               | 99.4           | 100.0          | - 0.6          | - 1.5    | 100.4    | - 1.0    |
|                  |                            |                               |                |                |                |          |          |          |                  |                         |                               | 99.0           | 100.0          | - 1.0          | - 1.9    | 101.5    | - 2.5    |
| " 11             |                            | I. P. E.                      | 40.2           | 40.0           | - 0.2          | - 1.1    | 40.3     | + 0.1    | " 11             |                         | I. P. W.                      | 101.5          | 100.0          | - 1.5          | - 2.4    | 98.5     | - 3.0    |
|                  |                            |                               | 40.4           | 40.0           | - 0.4          | - 1.3    | 38.3     | - 2.1    |                  |                         |                               | 101.2          | 100.0          | - 1.2          | - 2.1    | 98.4     | - 2.8    |
|                  |                            | I. P. W.                      | 42.6           | 40.0           | + 2.6          | + 1.7    | 45.5     | - 2.9    |                  |                         |                               | 101.3          | 100.0          | - 1.3          | - 2.2    | 98.4     | - 2.9    |
|                  |                            |                               | 43.1           | 40.0           | + 3.1          | + 2.2    | 45.5     | - 2.4    |                  |                         |                               |                |                |                |          |          |          |
| " 12             |                            | I. P. W.                      | 43.7           | 40.0           | + 3.7          | + 2.8    | 45.0     | - 1.3    | " 12             |                         | I. P. E.                      | 101.3          | 100.0          | + 1.3          | + 0.4    | 97.3     | + 4.0    |
|                  |                            |                               | 43.9           | 40.0           | + 3.9          | + 3.0    | 45.8     | - 1.9    |                  |                         |                               | 101.1          | 100.0          | + 1.1          | + 0.2    |          |          |
|                  |                            | I. P. E.                      | 40.6           | 40.0           | - 0.6          | - 1.5    | 40.0     | - 0.6    |                  |                         |                               | 101.0          | 100.0          | + 1.0          | + 0.1    | 98.8     | + 2.2    |
|                  |                            |                               | 40.2           | 40.0           | - 0.2          | - 1.1    | 39.9     | - 0.3    |                  |                         |                               | 102.0          | 100.0          | + 2.0          | + 1.1    | 99.3     | + 2.7    |
| " 13             |                            | I. P. E.                      | 39.3           | 40.0           | + 0.7          | - 0.2    | 42.6     | + 3.3    | " 13             |                         | I. P. W.                      | 102.5          | 100.0          | - 2.5          | - 3.4    | 106.2    | + 3.7*   |
|                  |                            |                               | 40.8           | 40.0           | - 0.8          | - 1.7    | 40.8     | 0.0      |                  |                         |                               | 101.0          | 100.0          | - 1.0          | - 1.9    | 107.9    | + 6.9*   |
|                  |                            | I. P. W.                      | 46.3           | 40.0           | + 6.3          | + 5.4    | 42.8     | + 3.5    |                  |                         |                               | 101.8          | 100.0          | - 1.8          | - 2.7    | 108.9    | + 7.1*   |
|                  |                            |                               | 44.4           | 40.0           | + 4.4          | + 3.5    | 42.3     | + 2.1    |                  |                         |                               |                |                |                |          |          |          |
| " 14             |                            | I. P. W.                      | 42.4           | 40.0           | + 2.4          | + 1.5    | 42.3     | + 0.1    | " 14             |                         | I. P. E.                      | 100.4          | 100.0          | + 0.4          | - 0.5    | 97.1     | + 3.3    |
|                  |                            |                               | 44.1           | 40.0           | + 4.1          | + 3.2    | 43.0     | + 1.1    |                  |                         |                               | 99.1           | 100.0          | - 0.9          | - 1.8    | 96.9     | + 2.2    |
|                  |                            | I. P. E.                      | 44.6           | 40.0           | - 4.6          | - 5.5    | 42.9     | - 1.7    |                  |                         |                               | 99.9           | 100.0          | - 0.1          | - 1.0    | 98.2     | + 1.7    |
|                  |                            |                               | 42.5           | 40.0           | - 2.5          | - 3.4    | 42.4     | - 0.1    |                  |                         |                               |                |                |                |          |          |          |
| " 15             |                            | I. P. E.                      | 40.5           | 40.0           | - 0.5          | - 1.4    | 43.9     | + 3.4    | " 15             |                         | I. P. W.                      | 101.1          | 100.0          | - 1.1          | - 2.0    | 98.5     | - 2.6    |
|                  |                            |                               | 42.0           | 40.0           | - 2.0          | - 2.9    | 43.2     | + 1.2    |                  |                         |                               | 102.2          | 100.0          | - 2.2          | - 3.1    | 97.5     | - 4.7    |
|                  |                            | I. P. W.                      | 44.3           | 40.0           | + 4.3          | + 3.4    | 42.1     | + 2.2    |                  |                         |                               | 100.9          | 100.0          | - 0.9          | - 1.8    | 97.1     | - 3.8    |
|                  |                            |                               | 41.2           | 40.0           | + 1.2          | + 0.3    | 42.7     | - 1.5    |                  |                         |                               |                |                |                |          |          |          |

\* For all Stars up to No. 3693 the mean value of 1st and 2nd has been used, and the mean of 2nd and 3rd for subsequent Stars.



| Astronl.<br>Date | Station | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          | Astronl.<br>Date | Station | Instru-<br>mental<br>Position | Collimation    |                |                |          | Level    |          |
|------------------|---------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|------------------|---------|-------------------------------|----------------|----------------|----------------|----------|----------|----------|
|                  |         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |                  |         |                               | C <sub>0</sub> | C <sub>s</sub> | c <sub>1</sub> | c        | M        | b        |
| 1884             |         |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> | 1884             |         |                               | <i>d</i>       | <i>d</i>       | <i>d</i>       | <i>d</i> | <i>d</i> | <i>d</i> |
| Mar. 26          |         | <i>I. P. E.</i>               | 41'7           | 42'0           | + 0'3          | - 0'6    | 40'2     | - 1'5    | Mar. 26          |         | <i>I. P. E.</i>               | 90'1           | 90'0           | + 0'1          | - 0'8    | 88'3     | + 1'8    |
|                  |         |                               | 40'9           | 42'0           | + 1'1          | + 0'2    | 39'2     | - 1'7    |                  |         |                               | 90'5           | 90'0           | + 0'5          | - 0'4    | 89'0     | + 1'5    |
|                  |         |                               |                |                |                |          |          |          |                  |         |                               |                |                |                |          | 88'8     | + 1'7    |
|                  |         | <i>I. P. W.</i>               | 42'4           | 42'0           | + 0'4          | - 0'5    | 44'7     | - 2'3    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 42'2           | 42'0           | + 0'2          | - 0'7    | 46'3     | - 4'1    |                  |         |                               |                |                |                |          |          |          |
| " 27             |         | <i>I. P. W.</i>               | 44'6           | 42'0*          | + 2'6          | + 1'7    | 43'2     | + 1'4    | " 27             |         | <i>I. P. W.</i>               | 89'1           | 90'0           | + 0'9          | 0'0      | 86'0     | - 3'1    |
|                  |         |                               | 43'8           | 42'0           | + 1'8          | + 0'9    | 45'0     | - 1'2    |                  |         |                               | 89'2           | 90'0           | + 0'8          | - 0'1    | 86'7     | - 2'5    |
|                  |         |                               |                |                |                |          |          |          |                  |         |                               | 89'5           | 90'0           | + 0'5          | - 0'4    | 86'4     | - 3'1    |
|                  |         | <i>I. P. E.</i>               | 41'1           | 42'0           | + 0'9          | 0'0      | 41'4     | + 0'3    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 39'8           | 42'0           | + 2'2          | + 1'3    | 40'0     | + 0'2    |                  |         |                               |                |                |                |          |          |          |
| " 28             |         | <i>I. P. E.</i>               | 40'6           | 42'0           | + 1'4          | + 0'5    | 42'3     | + 1'7    | " 28             |         | <i>I. P. E.</i>               | 89'2           | 90'0           | - 0'8          | - 1'7    | 91'1     | - 1'9    |
|                  |         |                               | 40'9           | 42'0           | + 1'1          | + 0'2    | 41'7     | + 0'8    |                  |         |                               |                |                |                |          | 90'3     | - 1'1    |
|                  |         |                               |                |                |                |          |          |          |                  |         |                               | 89'1           | 90'0           | - 0'9          | - 1'8    | 91'1     | - 2'0    |
|                  |         | <i>I. P. W.</i>               | 42'5           | 42'0           | + 0'5          | - 0'4    | 43'7     | - 1'2    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 44'1           | 42'0           | + 2'1          | + 1'2    | 43'9     | + 0'2    |                  |         |                               |                |                |                |          |          |          |
| " 29             |         | <i>I. P. W.</i>               | 44'1           | 42'0           | + 2'1          | + 1'2    | 43'0     | + 1'1    | " 29             |         | <i>I. P. W.</i>               | 88'7           | 90'0           | + 1'3          | + 0'4    | 89'7     | + 1'0    |
|                  |         |                               | 44'2           | 42'0           | + 2'2          | + 1'3    | 43'9     | + 0'3    |                  |         |                               |                |                |                |          | 90'1     | + 1'4    |
|                  |         |                               |                |                |                |          |          |          |                  |         |                               | 87'9           | 90'0           | + 2'1          | + 1'2    | 88'6     | + 0'7    |
|                  |         | <i>I. P. E.</i>               | 40'2           | 42'0           | + 1'8          | + 0'9    | 40'6     | + 0'4    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 39'9           | 42'0           | + 2'1          | + 1'2    | 40'7     | + 0'8    |                  |         |                               |                |                |                |          |          |          |
| " 30             |         | <i>I. P. E.</i>               | 42'8           | 42'0           | - 0'8          | - 1'7    | 42'1     | - 0'7    | " 30             |         | <i>I. P. E.</i>               | 89'7           | 90'0           | - 0'3          | - 1'2    | 91'1     | - 1'4    |
|                  |         |                               | 40'9           | 42'0           | + 1'1          | + 0'2    | 41'8     | + 0'9    |                  |         |                               | 91'7           | 90'0           | + 1'7          | + 0'8    | 91'8     | - 0'1    |
|                  |         | <i>I. P. W.</i>               | 43'1           | 42'0           | + 1'1          | + 0'2    | 42'0     | + 1'1    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 43'0           | 42'0           | + 1'0          | + 0'1    | 42'6     | + 0'4    |                  |         |                               |                |                |                |          |          |          |
| " 31             |         | <i>I. P. W.</i>               | 42'7           | 42'0           | + 0'7          | - 0'2    | 42'7     | 0'0      | " 31             |         | <i>I. P. W.</i>               | 88'8           | 90'0           | + 1'2          | + 0'3    | 89'3     | + 0'5    |
|                  |         |                               | 43'0           | 42'0           | + 1'0          | + 0'1    | 42'7     | + 0'3    |                  |         |                               | 89'3           | 90'0           | + 0'7          | - 0'2    | 89'1     | - 0'2    |
|                  |         | <i>I. P. E.</i>               | 41'0           | 42'0           | + 1'0          | + 0'1    | 41'2     | + 0'2    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 40'2           | 42'0           | + 1'8          | + 0'9    | 41'2     | + 1'0    |                  |         |                               |                |                |                |          |          |          |
| Apr. 1           |         | <i>I. P. E.</i>               | 41'0           | 42'0           | + 1'0          | + 0'1    | 42'0     | + 1'0    | Apr. 1           |         | <i>I. P. E.</i>               | 89'4           | 90'0           | - 0'6          | - 1'5    | 90'3     | - 0'9    |
|                  |         |                               | 39'7           | 42'0           | + 2'3          | + 1'4    | 40'5     | + 0'8    |                  |         |                               | 89'4           | 90'0           | - 0'6          | - 1'5    | 91'9     | - 2'5    |
|                  |         | <i>I. P. W.</i>               | 43'5           | 42'0           | + 1'5          | + 0'6    | 42'4     | + 1'1    |                  |         |                               |                |                |                |          |          |          |
|                  |         |                               | 41'2           | 42'0           | - 0'8          | - 1'7    | 42'0     | - 0'8    |                  |         |                               |                |                |                |          |          |          |

\* Except for Star No. 2209 for which C<sub>s</sub> = 72'0.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                | Station                 | Astronomical Date | Instrumental Position | Clock in use | Star                  | Culmination | No of Wires Observed | Deviation Constant A | Observed Time of Transit | Corrections for |          |          |          | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|--------------------|-------------------------|-------------------|-----------------------|--------------|-----------------------|-------------|----------------------|----------------------|--------------------------|-----------------|----------|----------|----------|--------------------------------------|---------------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------------|
|                    |                         |                   |                       |              |                       |             |                      |                      | <i>h m s</i>             | <i>s</i>        | <i>s</i> | <i>s</i> | <i>s</i> | <i>h m s</i>                         | <i>m s</i>                                                    | <i>d</i>                   | <i>d</i>                                          |                          |
| AKYAB AND CALCUTTA | AKYAB (Latitude 26° 8') | 1883              |                       |              |                       |             |                      |                      |                          |                 |          |          |          |                                      |                                                               |                            |                                                   |                          |
|                    |                         | Nov. 27           | I. P. E.              | E            | 289 Gr. 72            | U           | 3                    | -0° 21' 15"          | 3 5 10' 00"              | -0' 54"         | +0' 06"  | +1' 83"  |          | 11' 35"                              | 3 5 19' 22"                                                   | + 0 7' 87"                 | - 2' 3"                                           |                          |
|                    |                         |                   |                       | "            | 326 "                 | U           | 3                    | -0° 31' 17"          | 3 28 58' 67"             | -0' 80"         | +0' 08"  | -1' 83"  |          | 56' 12"                              | 3 29 1' 82"                                                   | + 0 5' 70"                 | + 4' 6"                                           | -2' 2"                   |
|                    |                         |                   |                       | "            | $\mu$ Geminorum       | U           | 15                   | -0° 00' 11"          | 6 15 52' 38"             | -0' 06"         | +0' 01"  | -1' 83"  | -0' 03"  | 50' 47"                              | 6 15 58' 11"                                                  | + 0 7' 64"                 | - 9' 0"                                           |                          |
|                    |                         |                   |                       | "            | $\alpha$ Argus        | U           | 12                   | +0° 03' 54"          | 6 21 19' 26"             | -0' 09"         | +0' 01"  | -1' 83"  | -0' 03"  | 17' 32"                              | 6 21 24' 63"                                                  | + 0 7' 31"                 |                                                   |                          |
|                    |                         | Dec. 8            | I. P. W.              | E            | 376 Gr. 72            | U           | 3                    | -0° 17' 83"          | 4 1 35' 37"              | -0' 14"         | -0' 13"  | +1' 82"  |          | 36' 92"                              | 4 1 40' 87"                                                   | + 0 3' 95"                 | + 3' 1"                                           |                          |
|                    |                         |                   |                       | "            | 383 "                 | U           | 4                    | -0° 11' 91"          | 4 6 59' 68"              | -0' 10"         | -0' 09"  | +1' 82"  |          | 61' 31"                              | 4 7 5' 01"                                                    | + 0 3' 70"                 | + 4' 6"                                           |                          |
|                    |                         |                   |                       | "            | 1556 "                | L           | 5                    | +0° 16' 25"          | 4 57 34' 76"             | +0' 12"         | +0' 05"  | +1' 82"  | -0' 01"  | 36' 74"                              | 4 57 41' 73"                                                  | + 0 4' 09"                 |                                                   | +4' 5"                   |
|                    |                         |                   |                       | W            | $\delta$ Ursæ Minoris | L           | 2                    | +0° 36' 48"          | 5 51 20' 20"             | +0' 27"         | +0' 15"  | +1' 82"  |          | 22' 44"                              | 6 9 21' 29"                                                   | +17 58' 85"                |                                                   | + 5' 7"                  |
|                    |                         |                   |                       | "            | 51 Cephei             | U           | 3                    | -0° 42' 73"          | 6 28 21' 60"             | -0' 33"         | -0' 25"  | -1' 82"  | -0' 02"  | 19' 18"                              | 6 46 13' 54"                                                  | +17 54' 36"                |                                                   |                          |
|                    |                         |                   |                       | E            | 376 Gr. 72            | U           | 3                    | -0° 17' 83"          | 4 1 36' 53"              | +0' 08"         | -0' 26"  | +1' 82"  |          | 38' 17"                              | 4 1 40' 85"                                                   | + 0 2' 68"                 | + 8' 9"                                           |                          |
|                    |                         |                   |                       | "            | 383 "                 | U           | 5                    | -0° 11' 91"          | 4 7 0' 66"               | +0' 05"         | -0' 20"  | +1' 82"  |          | 2' 33"                               | 4 7 5' 00"                                                    | + 0 2' 67"                 | +10' 8"                                           |                          |
|                    |                         |                   |                       | "            | 1556 "                | L           | 5                    | +0° 16' 25"          | 4 57 34' 18"             | -0' 07"         | +0' 10"  | +1' 82"  | -0' 01"  | 36' 02"                              | 4 57 41' 72"                                                  | + 0 5' 70"                 |                                                   | +9' 0"                   |
|                    |                         |                   | I. P. W.              | W            | $\delta$ Ursæ Minoris | L           | 2                    | +0° 36' 48"          | 5 51 20' 35"             | -0' 15"         | +0' 32"  | +1' 82"  |          | 22' 34"                              | 6 9 21' 15"                                                   | +17 58' 81"                |                                                   | + 7' 2"                  |
|                    |                         |                   |                       | "            | 51 Cephei             | U           | 3                    | -0° 42' 73"          | 6 28 22' 80"             | +0' 19"         | -0' 52"  | -1' 82"  | -0' 02"  | 20' 63"                              | 6 46 13' 77"                                                  | +17 53' 14"                |                                                   |                          |
|                    |                         |                   |                       | E            | 376 Gr. 72            | U           | 4                    | -0° 17' 83"          | 4 1 35' 48"              | -0' 90"         | -0' 31"  | +1' 81"  |          | 36' 08"                              | 4 1 40' 84"                                                   | + 0 4' 76"                 | - 2' 1"                                           |                          |
|                    |                         |                   |                       | "            | 383 "                 | U           | 4                    | -0° 11' 91"          | 4 7 0' 28"               | -0' 62"         | -0' 24"  | +1' 81"  |          | 1' 23"                               | 4 7 5' 00"                                                    | + 0 3' 77"                 | + 1' 0"                                           |                          |
|                    |                         |                   | I. P. E.              | "            | 1556 "                | L           | 4                    | +0° 16' 25"          | 4 57 35' 00"             | +0' 75"         | +0' 12"  | +1' 81"  | -0' 01"  | 37' 67"                              | 4 57 41' 71"                                                  | + 0 4' 04"                 |                                                   | -1' 0"                   |
|                    |                         |                   |                       | W            | $\delta$ Ursæ Minoris | L           | 2                    | +0° 36' 48"          | 5 51 23' 15"             | +1' 71"         | +0' 38"  | +1' 81"  |          | 27' 05"                              | 6 9 21' 01"                                                   | +17 53' 96"                |                                                   | - 1' 8"                  |
|                    |                         |                   |                       | "            | 51 Cephei             | U           | 3                    | -0° 42' 73"          | 6 28 23' 17"             | -2' 09"         | -0' 63"  | -1' 81"  | -0' 02"  | 18' 62"                              | 6 46 14' 00"                                                  | +17 55' 38"                |                                                   |                          |
|                    |                         |                   |                       | E            | 376 Gr. 72            | U           | 4                    | -0° 17' 83"          | 4 1 35' 90"              | -0' 90"         | +0' 03"  | +1' 84"  |          | 36' 87"                              | 4 1 40' 82"                                                   | + 0 3' 95"                 | - 4' 8"                                           |                          |
|                    |                         |                   | I. P. E.              | "            | 383 "                 | U           | 4                    | -0° 11' 91"          | 4 7 0' 58"               | -0' 62"         | +0' 02"  | +1' 84"  |          | 1' 82"                               | 4 7 4' 99"                                                    | + 0 3' 17"                 | - 3' 0"                                           |                          |
|                    |                         |                   |                       | "            | 1556 "                | L           | 3                    | +0° 16' 25"          | 4 57 36' 80"             | +0' 75"         | -0' 01"  | +1' 84"  | -0' 01"  | 39' 37"                              | 4 57 41' 69"                                                  | + 0 2' 32"                 |                                                   | -4' 6"                   |
|                    |                         |                   |                       | W            | $\delta$ Ursæ Minoris | L           | 3                    | +0° 36' 48"          | 5 51 24' 93"             | +1' 71"         | -0' 03"  | +1' 84"  |          | 28' 45"                              | 6 9 20' 87"                                                   | +17 52' 42"                | - 6' 1"                                           |                          |
|                    |                         |                   |                       | "            | 51 Cephei             | U           | 2                    | -0° 42' 73"          | 6 28 20' 85"             | -2' 09"         | +0' 05"  | -1' 84"  |          | 16' 97"                              | 6 46 14' 26"                                                  | +17 57' 29"                |                                                   |                          |
|                    |                         |                   | I. P. W.              | E            | 376 Gr. 72            | U           | 5                    | -0° 17' 83"          | 4 1 33' 70"              | +0' 66"         | +0' 30"  | +1' 85"  |          | 36' 51"                              | 4 1 40' 80"                                                   | + 0 4' 20"                 | - 2' 9"                                           |                          |
|                    |                         |                   |                       | "            | 383 "                 | U           | 5                    | -0° 11' 91"          | 4 6 59' 06"              | +0' 45"         | +0' 23"  | +1' 85"  |          | 61' 59"                              | 4 7 4' 99"                                                    | + 0 3' 40"                 | - 0' 3"                                           |                          |
|                    |                         |                   |                       | "            | 1556 "                | L           | 4                    | +0° 16' 25"          | 4 57 37' 20"             | -0' 55"         | -0' 12"  | +1' 85"  | -0' 01"  | 38' 37"                              | 4 57 41' 68"                                                  | + 0 3' 31"                 |                                                   | -1' 6"                   |
|                    |                         |                   |                       | W            | $\delta$ Ursæ Minoris | L           | 3                    | +0° 36' 48"          | 5 51 25' 47"             | -1' 26"         | -0' 37"  | +1' 85"  |          | 25' 69"                              | 6 9 20' 72"                                                   | +17 55' 03"                | - 1' 6"                                           |                          |
|                    |                         |                   | I. P. W.              | "            | 51 Cephei             | U           | 3                    | -0° 42' 73"          | 6 28 17' 93"             | +1' 53"         | +0' 61"  | -1' 85"  | +0' 01"  | 18' 23"                              | 6 46 14' 54"                                                  | +17 56' 31"                |                                                   |                          |
|                    |                         |                   |                       | E            | 376 Gr. 72            | U           | 4                    | -0° 17' 83"          | 4 1 34' 80"              | +0' 56"         | +0' 22"  | +1' 83"  |          | 37' 41"                              | 4 1 40' 78"                                                   | + 0 3' 37"                 | - 3' 1"                                           |                          |
|                    |                         |                   |                       | "            | 383 "                 | U           | 5                    | -0° 11' 91"          | 4 6 59' 82"              | +0' 38"         | +0' 17"  | +1' 83"  |          | 62' 20"                              | 4 7 4' 98"                                                    | + 0 2' 78"                 | - 1' 6"                                           |                          |
|                    |                         |                   |                       | "            | 1556 "                | L           | 5                    | +0° 16' 25"          | 4 57 38' 08"             | -0' 47"         | -0' 09"  | +1' 83"  | -0' 01"  | 39' 34"                              | 4 57 41' 67"                                                  | + 0 2' 33"                 |                                                   | -1' 6"                   |
|                    |                         |                   | I. P. W.              | W            | $\delta$ Ursæ Minoris | L           | 3                    | +0° 36' 48"          | 5 51 25' 47"             | -1' 07"         | -0' 27"  | +1' 83"  |          | 25' 96"                              | 6 9 20' 54"                                                   | +17 54' 58"                | - 0' 2"                                           |                          |
|                    |                         |                   |                       | "            | 51 Cephei             | U           | 3                    | -0° 42' 73"          | 6 28 20' 17"             | +1' 30"         | +0' 45"  | -1' 83"  | +0' 01"  | 20' 10"                              | 6 46 14' 83"                                                  | +17 54' 73"                |                                                   |                          |

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                | Station                           | Astronomical Date | Instrumental Position | Clock in use           | Star                   | Culmination | No. of Wires Observed | Deviation Constant $\Delta$ | Observed Time of Transit  | Corrections for                    |       |                |                           | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|--------------------|-----------------------------------|-------------------|-----------------------|------------------------|------------------------|-------------|-----------------------|-----------------------------|---------------------------|------------------------------------|-------|----------------|---------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------------|
|                    |                                   |                   |                       |                        |                        |             |                       |                             |                           | Collimation                        | Level | Pen Equation Q | Approximate Clock Rate    |                                      |                                                               |                            |                                                   |                          |
| AKYAB AND CALCUTTA | AKYAB (Latitude $20^{\circ} 8'$ ) | 1883              | <i>I. P. E.</i>       | E                      | 376 Gr. 72             | U           | 3                     | -0.1783                     | <i>h m s</i><br>4 1 34.63 | <i>s s s s</i><br>0.00 +0.08 +1.85 |       | 36.56          | <i>h m s</i><br>4 1 40.77 | <i>m s</i><br>+ 0 4.21               | - 4.5                                                         | -1.8                       |                                                   |                          |
|                    |                                   |                   |                       | "                      | 383 "                  | U           | 5                     | -0.1191                     | 4 7 0.04                  | 0.00 +0.06 +1.85                   | 1.95  | 4 7 4.98       | + 0 3.03                  | - 1.2                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   |                       | "                      | 1556 "                 | L           | 5                     | +0.1625                     | 4 57 37.16                | 0.00 -0.03 +1.85                   | -0.01 | 38.97          | 4 57 41.66                | + 0 2.69                             |                                                               |                            |                                                   |                          |
|                    |                                   |                   |                       | W                      | $\delta$ Ursae Minoris | L           | 3                     | +0.3648                     | 5 51 22.23                | 0.00 -0.10 +1.85                   |       | 23.98          | 6 9 20.37                 | +17 56.39                            | + 0.3                                                         |                            |                                                   |                          |
|                    |                                   |                   |                       | "                      | 51 Cephei              | U           | 3                     | -0.4273                     | 6 28 20.67                | 0.00 +0.16 -1.85                   | +0.01 | 18.99          | 6 46 15.14                | +17 56.15                            |                                                               |                            |                                                   |                          |
|                    |                                   | Nov. 27           |                       | E                      | 289 Gr. 72             | U           | 4                     | -0.2071                     | 3 23 13.78                | +0.35 -0.23 +1.43                  |       | 15.33          | 3 5 19.22                 | -17 56.11                            | -28.4                                                         | -28.9                      |                                                   |                          |
|                    |                                   |                   |                       | "                      | 326 "                  | U           | 2                     | -0.3109                     | 3 46 59.20                | +0.52 -0.32 -1.43                  | -0.01 | 57.96          | 3 29 1.82                 | -17 56.14                            | -21.8                                                         |                            |                                                   |                          |
|                    |                                   |                   |                       | "                      | 1402 "                 | L           | 2                     | +0.1374                     | 3 53 55.00                | -0.21 +0.07 -1.43                  | -0.01 | 53.42          | 3 35 47.51                | -18 5.91                             |                                                               |                            |                                                   |                          |
|                    |                                   |                   |                       | W                      | 514 "                  | U           | 2                     | -0.2353                     | 5 25 7.15                 | +0.40 -0.26 +1.43                  |       | 8.72           | 5 25 13.47                | 1 0 4.75                             | -36.4                                                         |                            |                                                   |                          |
|                    |                                   |                   |                       | "                      | $\delta$ Ursae Minoris | L           | 2                     | +0.3599                     | 6 9 39.10                 | -0.57 +0.26 +1.43                  | -0.02 | 40.20          | 6 9 23.27*                | - 0 16.93                            |                                                               |                            |                                                   |                          |
|                    | Dec. 8                            |                   | W                     | 1402 Gr. 72            | L                      | 5           | +0.1374               | 3 36 12.42                  | -0.30 -0.16 +1.53         |                                    | 13.49 | 3 35 47.74     | - 0 25.75                 | -92.3                                | -92.1                                                         |                            |                                                   |                          |
|                    |                                   |                   | "                     | 383 "                  | U                      | 9           | -0.1161               | 4 7 5.22                    | +0.29 +0.35 +1.53         | -0.02                              | 7.37  | 4 7 5.01       | - 0 2.36                  | -91.9                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 1556 "                 | L                      | 8           | +0.1609               | 4 58 8.59                   | -0.35 -0.20 +1.53         | -0.03                              | 9.54  | 4 57 41.73     | - 0 27.81                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | $\delta$ Ursae Minoris | L                      | 3           | +0.3599               | 6 10 5.43                   | -0.80 -0.60 +1.53         |                                    | 5.56  | 6 9 21.29      | - 0 44.27                 | -92.1                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 51 Cephei              | U                      | 3           | -0.4194               | 6 45 42.57                  | +0.97 +0.95 +1.53         | -0.02                              | 46.00 | 6 46 13.54     | + 0 27.54                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   | " 9               | W                     | 1402 Gr. 72            | L                      | 5           | +0.1374               | 3 36 10.04                  | +1.06 -0.08 +1.53         |                                    | 12.55 | 3 35 47.78     | - 0 24.77                 | -80.0                                |                                                               | -82.3                      |                                                   |                          |
|                    |                                   |                   | "                     | 383 "                  | U                      | 8           | -0.1161               | 4 7 8.83                    | -1.03 +0.18 +1.53         | -0.02                              | 9.49  | 4 7 5.00       | - 0 4.49                  | -82.7                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 1556 "                 | L                      | 8           | +0.1609               | 4 58 6.49                   | +1.25 -0.11 +1.53         | -0.03                              | 9.13  | 4 57 41.72     | - 0 27.41                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | $\delta$ Ursae Minoris | L                      | 2           | +0.3599               | 6 10 1.80                   | +2.86 -0.31 +1.53         |                                    | 5.88  | 6 9 21.15      | - 0 44.73                 | -84.2                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 51 Cephei              | U                      | 3           | -0.4194               | 6 45 54.33                  | -3.48 +0.50 +1.53         | -0.02                              | 52.86 | 6 46 13.77     | + 0 20.91                 |                                      |                                                               |                            |                                                   |                          |
|                    | " 10                              |                   | W                     | 1402 Gr. 72            | L                      | 6           | +0.1374               | 3 36 12.35                  | +0.20 -0.06 +1.48         |                                    | 13.97 | 3 35 47.83     | - 0 26.14                 | -77.5                                | -75.9                                                         |                            |                                                   |                          |
|                    |                                   |                   | "                     | 383 "                  | U                      | 8           | -0.1161               | 4 7 10.11                   | -0.19 +0.12 +1.48         | -0.02                              | 11.50 | 4 7 5.00       | - 0 6.50                  | -75.7                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 1556 "                 | L                      | 5           | +0.1609               | 4 58 7.58                   | +0.23 -0.07 +1.48         | -0.03                              | 9.19  | 4 57 41.71     | - 0 27.48                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | $\delta$ Ursae Minoris | L                      | 2           | +0.3599               | 6 10 0.15                   | +0.53 -0.21 +1.48         |                                    | 1.95  | 6 9 21.01      | - 0 40.94                 | -74.6                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 51 Cephei              | U                      | 3           | -0.4194               | 6 45 55.67                  | -0.65 +0.34 +1.48         | -0.02                              | 56.82 | 6 46 14.00     | + 0 17.18                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   | " 11              | W                     | 1402 Gr. 72            | L                      | 5           | +0.1374               | 3 36 14.50                  | +0.27 -0.22 +1.47         |                                    | 16.02 | 3 35 47.87     | - 0 28.15                 | -93.6                                |                                                               | -94.1                      |                                                   |                          |
|                    |                                   |                   | "                     | 383 "                  | U                      | 6           | -0.1161               | 4 7 7.72                    | -0.26 +0.49 +1.47         |                                    | 9.42  | 4 7 4.99       | - 0 4.43                  | -95.2                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 1556 "                 | L                      | 8           | +0.1609               | 4 58 10.98                  | +0.32 -0.28 +1.47         |                                    | 12.49 | 4 57 41.69     | - 0 30.80                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | $\delta$ Ursae Minoris | L                      | 2           | +0.3599               | 6 10 7.20                   | +0.72 -0.84 +1.47         |                                    | 8.55  | 6 9 20.87      | - 0 47.68                 | -93.5                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 51 Cephei              | U                      | 3           | -0.4194               | 6 45 47.17                  | -0.88 +1.33 +1.47         |                                    | 49.09 | 6 46 14.26     | + 0 25.17                 |                                      |                                                               |                            |                                                   |                          |
|                    | " 12                              |                   | W                     | 383 Gr. 72             | U                      | 6           | -0.1161               | 4 7 8.30                    | -0.16 -0.23 +1.48         |                                    | 9.39  | 4 7 4.99       | - 0 4.40                  | -95.2                                | -95.4                                                         |                            |                                                   |                          |
|                    |                                   |                   | "                     | 1556 "                 | L                      | 8           | +0.1609               | 4 58 10.63                  | +0.20 +0.14 +1.48         | +0.01                              | 12.46 | 4 57 41.68     | - 0 30.78                 |                                      |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | $\delta$ Ursae Minoris | L                      | 2           | +0.3599               | 6 10 6.75                   | +0.46 +0.40 +1.48         |                                    | 9.09  | 6 9 20.72      | - 0 48.37                 | -95.5                                |                                                               |                            |                                                   |                          |
|                    |                                   |                   | "                     | 51 Cephei              | U                      | 3           | -0.4194               | 6 45 48.20                  | -0.56 -0.64 +1.48         | +0.01                              | 48.49 | 6 46 14.54     | + 0 26.05                 |                                      |                                                               |                            |                                                   |                          |

\* Deduced from the Greenwich Nine-Year Catalogue for 1872.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a_1$ , FROM STAR OBSERVATIONS.

| Arc                  | Station                               | Astronomical Date | Instrumental Position | Clock in use | Star                   | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit | Corrections for |       |                |                        | Seconds of Corrected Time of Transit | Right Ascension (increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $a_1$ | Arithmetic Mean $a$ |
|----------------------|---------------------------------------|-------------------|-----------------------|--------------|------------------------|-------------|-----------------------|----------------------|--------------------------|-----------------|-------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|----------------------------------------------|---------------------|
|                      |                                       |                   |                       |              |                        |             |                       |                      |                          | Collimation     | Level | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                              |                     |
| AKYAB AND CALCUTTA   | CALCUTTA (Latitude $22^{\circ} 33'$ ) | 1883<br>Dec. 13   | I. P. W.              | W            | 383 Gr. 72             | U           | 8                     | -0.1161              | 4 7 6.86                 | -0.26           | -0.13 | +1.48          |                        | 7.95                                 | 4 7 4.98                                                      | -0 2.97                    | -106.2                                       | -107.0              |
|                      |                                       |                   |                       | "            | 1556 "                 | L           | 8                     | +0.1609              | 4 58 12.16               | +0.32           | +0.08 | +1.48          | +0.01                  | 14.05                                | 4 57 41.67                                                    | -0 32.38                   |                                              |                     |
|                      |                                       |                   |                       | "            | $\delta$ Ursæ Minoris  | L           | 2                     | +0.3599              | 6 10 11.75               | +0.72           | +0.23 | +1.48          |                        | 14.18                                | 6 9 20.54                                                     | -0 53.64                   | -108.9                                       |                     |
|                      |                                       |                   |                       | "            | 51 Cephei              | U           | 3                     | -0.4194              | 6 45 43.37               | -0.88           | -0.36 | +1.48          | +0.01                  | 43.62                                | 6 46 14.83                                                    | +0 31.21                   |                                              |                     |
|                      |                                       | " 14              | I. P. W.              | W            | 383 Gr. 72             | U           | 6                     | -0.1161              | 4 7 5.83                 | +0.11           | -0.07 | +1.48          |                        | 7.35                                 | 4 7 4.98                                                      | -0 2.37                    | -106.9                                       | -107.1              |
|                      |                                       |                   |                       | "            | 1556 "                 | L           | 5                     | +0.1609              | 4 58 12.24               | -0.13           | +0.04 | +1.48          | +0.01                  | 13.64                                | 4 57 41.66                                                    | -0 31.98                   |                                              |                     |
|                      |                                       |                   |                       | "            | $\delta$ Ursæ Minoris  | L           | 2                     | +0.3599              | 6 10 11.90               | -0.30           | +0.11 | +1.48          |                        | 13.19                                | 6 9 20.37                                                     | -0 52.82                   |                                              |                     |
|                      |                                       |                   |                       | "            | 51 Cephei              | U           | 3                     | -0.4194              | 6 45 42.63               | +0.37           | -0.18 | +1.48          | +0.01                  | 44.31                                | 6 46 15.14                                                    | +0 30.83                   | -107.3                                       |                     |
|                      |                                       | 1883<br>Dec. 26   | I. P. E.              | E            | 1556 Gr. 72            | L           | 5                     | +0.1625              | 4 57 31.32               | -0.10           | +0.06 | +1.86          |                        | 33.14                                | 4 57 41.86                                                    | +0 8.72                    | -4.2                                         | -4.4                |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 3                     | -0.1019              | 5 3 24.47                | +0.07           | -0.11 | +1.86          |                        | 26.29                                | 5 3 36.11                                                     | +0 9.82                    |                                              |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 42 5.60                | +0.28           | -0.33 | +1.86          |                        | 7.41                                 | 6 46 17.47                                                    | +4 10.06                   | -4.5                                         |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1683              | 7 34 49.90               | -0.74           | +0.73 | +1.86          | -0.33                  | 51.42                                | 7 38 54.22                                                    | +4 2.80                    |                                              |                     |
|                      |                                       |                   |                       | E            | 1556 Gr. 72            | L           | 4                     | +0.1625              | 4 57 30.85               | -0.32           | +0.10 | +1.88          |                        | 32.51                                | 4 57 41.90                                                    | +0 9.39                    | -3.1                                         |                     |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 6                     | -0.1019              | 5 3 23.97                | +0.23           | -0.18 | +1.88          |                        | 25.90                                | 5 3 36.10                                                     | +0 10.20                   |                                              |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 42 15.00               | +0.88           | -0.52 | +1.88          |                        | 18.14                                | 6 46 17.64                                                    | +3 59.50                   | -2.1                                         |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1683              | 7 34 57.00               | -2.35           | +1.17 | +1.88          | -0.33                  | 57.37                                | 7 38 53.56                                                    | +3 56.19                   |                                              |                     |
|                      |                                       |                   |                       | E            | 1556 Gr. 72            | L           | 5                     | +0.1625              | 4 57 29.10               | +0.38           | +0.05 | +1.87          |                        | 31.40                                | 4 57 41.95                                                    | +0 10.55                   | -0.2                                         |                     |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 5                     | -0.1019              | 5 3 23.98                | -0.27           | -0.09 | +1.87          |                        | 25.49                                | 5 3 36.09                                                     | +0 10.60                   | +0.9                                         |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 42 29.13               | -1.07           | -0.25 | +1.87          |                        | 29.68                                | 6 46 17.82                                                    | +3 48.14                   | +1.9                                         |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 3                     | +1.1683              | 7 34 56.70               | +2.84           | +0.57 | +1.87          | -0.33                  | 61.65                                | 7 38 52.86                                                    | +3 51.21                   |                                              |                     |
| AKYAB AND CHITTAGONG | AKYAB (Latitude $20^{\circ} 8'$ )     | " 27              | I. P. W.              | E            | 1556 Gr. 72            | L           | 5                     | +0.1625              | 4 57 28.06               | -0.18           | +0.01 | +1.89          |                        | 29.78                                | 4 57 41.99                                                    | +0 12.21                   | +5.5                                         | +3.3                |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 5                     | -0.1019              | 5 3 23.30                | +0.13           | -0.01 | +1.89          |                        | 25.31                                | 5 3 36.07                                                     | +0 10.76                   |                                              |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 42 35.60               | +0.51           | -0.04 | +1.89          |                        | 37.96                                | 6 46 18.00                                                    | +3 40.04                   | +1.0                                         |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1683              | 7 35 10.25               | -1.36           | +0.08 | +1.89          | -0.33                  | 10.53                                | 7 38 52.17                                                    | +3 41.64                   |                                              |                     |
|                      |                                       | " 28              | I. P. W.              | E            | 1556 Gr. 72            | L           | 5                     | +0.1625              | 4 57 26.78               | +0.28           | +0.07 | +1.89          |                        | 29.02                                | 4 57 42.20                                                    | +0 13.18                   | -6.8                                         | -5.9                |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 5                     | -0.1019              | 5 3 19.46                | -0.20           | -0.13 | +1.89          |                        | 21.02                                | 5 3 36.01                                                     | +0 14.99                   |                                              |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 43 10.17               | -0.79           | -0.38 | +1.89          |                        | 10.89                                | 6 46 17.75                                                    | +3 6.86                    | -5.0†                                        |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1683              | 7 35 48.50               | +2.10           | +0.85 | +1.89          | -0.33                  | 53.01                                | 7 38 47.75                                                    | +2 54.74                   |                                              |                     |
|                      |                                       | " 29              | I. P. E.              | E            | $\alpha$ Aurigæ        | U           | 15                    | -0.0140              | 5 7 55.13                | +0.02           | -0.03 | +1.89          |                        | 57.01                                | 5 8 9.95                                                      | +0 12.94                   | -3.9                                         | -5.0                |
|                      |                                       |                   |                       | "            | $\alpha$ Columbæ       | U           | 15                    | +0.0221              | 5 35 17.97               | +0.02           | -0.02 | -1.89          | +0.01                  | 16.09                                | 5 35 28.89                                                    | +0 12.80                   |                                              |                     |
|                      |                                       |                   |                       | "            | $\alpha$ Argûs         | U           | 15                    | +0.0354              | 6 21 14.17               | +0.03           | -0.01 | -1.89          | +0.04                  | 12.34                                | 6 21 25.06                                                    | +0 12.72                   | -4.5                                         |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 42 41.13               | +0.32           | -0.18 | +1.89          |                        | 43.16                                | 6 46 18.17                                                    | +3 32.23*                  | -6.5                                         |                     |
|                      |                                       | 1884<br>Jan. 2    | I. P. W.              | E            | 1556 Gr. 72            | L           | 6                     | +0.1625              | 4 57 26.78               | +0.28           | +0.07 | +1.89          |                        | 29.02                                | 4 57 42.20                                                    | +0 13.18                   | -6.8                                         | -5.9                |
|                      |                                       |                   |                       | "            | 477 "                  | U           | 5                     | -0.1019              | 5 3 19.46                | -0.20           | -0.13 | +1.89          |                        | 21.02                                | 5 3 36.01                                                     | +0 14.99                   |                                              |                     |
|                      |                                       |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4276              | 6 43 10.17               | -0.79           | -0.38 | +1.89          |                        | 10.89                                | 6 46 17.75                                                    | +3 6.86                    | -5.0†                                        |                     |
|                      |                                       |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1683              | 7 35 48.50               | +2.10           | +0.85 | +1.89          | -0.33                  | 53.01                                | 7 38 47.75                                                    | +2 54.74                   |                                              |                     |

\* True clock correction deduced from 29th December and 2nd January.

† The Telescope was accidentally shifted 3.6 divisions to the west between 7h 20m and 7h 30m; this has been allowed for in deducing the value of  $a_1$ .

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                  | Station                 | Astronomical Date             | Instrumental Position  | Clock in use | Star                   | Culmination           | No. of Wires Observed | Deviation Constant A | Observed Time of Transit | Corrections for |       |                |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |       |       |
|----------------------|-------------------------|-------------------------------|------------------------|--------------|------------------------|-----------------------|-----------------------|----------------------|--------------------------|-----------------|-------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------------|-------|-------|
|                      |                         |                               |                        |              |                        |                       |                       |                      |                          | Collimation     | Level | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                                   |                          |       |       |
| AKYAB AND CHITTAGONG | AKYAB (Latitude 20° 8') | 1884<br>Jan. 3                | I. P. W.               | E            | 1556 Gr. 72            | L                     | 5                     | +0.1625              | 4 57 26.40               | +0.23           | -0.01 | +1.90          |                        | 28.52                                | 4 57 42.26                                                    | + 0 13.74                  | - 6.5                                             | -6.4                     |       |       |
|                      |                         |                               |                        | "            | 477 "                  | U                     | 5                     | -0.1019              | 5 3 18.78                | -0.17           | +0.01 | +1.90          |                        | 20.52                                | 5 3 35.99                                                     | + 0 15.47                  |                                                   |                          |       |       |
|                      |                         |                               |                        | W            | 51 Cephei              | U                     | 3                     | -0.4276              | 6 43 20.30               | -0.65           | +0.04 | +1.90          |                        | 21.59                                | 6 46 17.80                                                    | + 2 56.21                  | - 6.3                                             |                          |       |       |
|                      |                         |                               |                        | "            | $\lambda$ Ursæ Minoris | L                     | 2                     | +1.1683              | 7 35 58.00               | +1.73           | -0.08 | +1.90          | -0.33                  | 61.22                                | 7 38 47.33                                                    | + 2 46.11                  |                                                   |                          |       |       |
|                      |                         | " 4                           | I. P. E.               | E            | 1556 Gr. 72            | L                     | 5                     | +0.1625              | 4 57 24.86               | -0.56           | -0.01 | +1.90          |                        | 26.19                                | 4 57 42.32                                                    | + 0 16.13                  | + 3.1                                             | +1.7                     |       |       |
|                      |                         |                               |                        | "            | 477 "                  | U                     | 5                     | -0.1019              | 5 3 18.34                | +0.40           | +0.01 | +1.90          |                        | 20.65                                | 5 3 35.97                                                     | + 0 15.32                  |                                                   |                          |       |       |
|                      |                         |                               |                        | W            | 51 Cephei              | U                     | 3                     | -0.4276              | 6 43 30.70               | +1.58           | +0.04 | +1.90          |                        | 34.22                                | 6 46 17.82                                                    | + 2 43.60                  | + 0.3                                             |                          |       |       |
|                      |                         |                               |                        | "            | $\lambda$ Ursæ Minoris | L                     | 2                     | +1.1683              | 7 36 5.65                | -4.20           | -0.08 | +1.90          | -0.33                  | 2.94                                 | 7 38 46.99                                                    | + 2 44.05                  |                                                   |                          |       |       |
|                      |                         | CHITTAGONG (Latitude 22° 20') | 1883<br>Dec. 26        | I. P. E.     | E                      | 1556 Gr. 72           | L                     | 5                    | +0.1610                  | 5 1 56.54       | -0.48 | -0.04          | +1.49                  |                                      | 57.51                                                         | 4 57 41.86                 | - 4 15.65                                         | -64.9                    | -66.0 |       |
|                      |                         |                               |                        |              | "                      | 177 "                 | U                     | 6                    | -0.0995                  | 5 7 32.95       | +0.35 | +0.07          | +1.49                  |                                      | 34.86                                                         | 5 3 36.11                  | - 3 58.75                                         |                          |       |       |
|                      |                         |                               |                        |              | W                      | $\delta$ Ursæ Minoris | L                     | 2                    | +0.3600                  | 6 9 51.50       | -1.10 | -0.12          | -1.49                  |                                      | 48.79                                                         | 6 9 19.35                  | - 0 29.44                                         | -65.2                    |       |       |
|                      |                         |                               |                        |              | "                      | 51 Cephei             | U                     | 4                    | -0.4203                  | 6 45 53.20      | +1.35 | +0.20          | +1.49                  | -0.23                                | 56.01                                                         | 6 46 17.47                 | + 0 21.46                                         | -67.9                    |       |       |
|                      | "                       |                               |                        |              | $\lambda$ Ursæ Minoris | L                     | 2                     | +1.1519              | 7 40 25.65               | -3.58           | -0.45 | -1.49          | -0.56                  | 19.57                                | 7 38 54.22                                                    | - 1 25.35                  |                                                   |                          |       |       |
|                      | E                       |                               |                        |              | 1556 Gr. 72            | L                     | 5                     | +0.1610              | 5 1 46.18                | -0.45           | +0.03 | +1.49          |                        | 47.25                                | 4 57 41.90                                                    | - 4 5.35                   | - 6.9                                             | -10.6                    |       |       |
|                      | "                       |                               |                        |              | 477 "                  | U                     | 6                     | -0.0995              | 5 7 37.88                | +0.32           | -0.05 | +1.49          |                        | 39.64                                | 5 3 36.10                                                     | - 4 3.54                   |                                                   |                          |       |       |
|                      | W                       |                               |                        |              | $\delta$ Ursæ Minoris  | L                     | 2                     | +0.3600              | 6 9 39.70                | -1.03           | +0.10 | -1.49          |                        | 37.28                                | 6 9 19.28                                                     | - 0 18.00                  | -10.2                                             |                          |       |       |
|                      | "                       |                               |                        |              | 51 Cephei              | U                     | 4                     | -0.4203              | 6 46 25.30               | +1.25           | -0.16 | +1.49          | -0.23                  | 27.65                                | 6 46 17.64                                                    | - 0 10.01                  | -14.8                                             |                          |       |       |
|                      | "                       |                               |                        |              | $\lambda$ Ursæ Minoris | L                     | 1                     | +1.1519              | 7 39 31.90               | -3.34           | +0.36 | -1.49          | -0.56                  | 26.87                                | 7 38 53.56                                                    | - 0 33.31                  |                                                   |                          |       |       |
|                      | E                       |                               |                        |              | 1556 Gr. 72            | L                     | 5                     | +0.1610              | 5 1 45.28                | +0.28           | +0.01 | +1.46          |                        | 47.03                                | 4 57 41.95                                                    | - 4 5.08                   | - 9.4                                             |                          |       | -13.0 |
|                      | "                       |                               |                        |              | 477 "                  | U                     | 4                     | -0.0995              | 5 7 37.48                | -0.20           | -0.02 | +1.46          |                        | 38.72                                | 5 3 36.09                                                     | - 4 2.63                   |                                                   |                          |       |       |
|                      | W                       |                               | $\delta$ Ursæ Minoris  | L            | 2                      | +0.3600               | 6 9 47.85             | +0.65                | +0.04                    | -1.46           |       | 47.08          | 6 9 19.21              | - 0 27.87                            | -13.6                                                         |                            |                                                   |                          |       |       |
|                      | "                       |                               | 51 Cephei              | U            | 5                      | -0.4203               | 6 46 34.66            | -0.79                | -0.06                    | +1.46           | -0.23 | 35.04          | 6 46 17.82             | - 0 17.22                            | -16.0                                                         |                            |                                                   |                          |       |       |
|                      | "                       |                               | $\lambda$ Ursæ Minoris | L            | 2                      | +1.1519               | 7 39 35.10            | +2.10                | +0.13                    | -1.46           | -0.56 | 35.31          | 7 38 52.86             | - 0 42.45                            |                                                               |                            |                                                   |                          |       |       |
|                      | E                       |                               | 1556 Gr. 72            | L            | 5                      | +0.1610               | 5 1 44.96             | +0.23                | -0.02                    | +1.46           |       | 46.63          | 4 57 41.99             | - 4 4.64                             | -13.2                                                         | -11.5                      |                                                   |                          |       |       |
|                      | "                       |                               | 477 "                  | U            | 6                      | -0.0995               | 5 7 35.95             | -0.17                | +0.03                    | +1.46           |       | 37.27          | 5 3 36.07              | - 4 1.20                             |                                                               |                            |                                                   |                          |       |       |
|                      | W                       |                               | $\delta$ Ursæ Minoris  | L            | 2                      | +0.3600               | 6 9 56.85             | +0.53                | -0.05                    | -1.46           |       | 55.87          | 6 9 19.15              | - 0 36.72                            | -11.4                                                         |                            |                                                   |                          |       |       |
|                      | "                       |                               | 51 Cephei              | U            | 5                      | -0.4203               | 6 46 45.18            | -0.65                | +0.08                    | +1.46           | -0.23 | 45.84          | 6 46 18.00             | - 0 27.84                            | -10.0                                                         |                            |                                                   |                          |       |       |
|                      | "                       |                               | $\lambda$ Ursæ Minoris | L            | 2                      | +1.1519               | 7 39 36.25            | +1.73                | -0.18                    | -1.46           | -0.56 | 35.78          | 7 38 52.17             | - 0 43.61                            |                                                               |                            |                                                   |                          |       |       |
|                      | E                       |                               | 1556 Gr. 72            | L            | 3                      | +0.1610               | 5 1 43.53             | +0.25                | -0.07                    | +1.47           |       | 45.18          | 4 57 42.04             | - 4 3.14                             | - 8.7                                                         |                            | - 9.7                                             |                          |       |       |
|                      | "                       |                               | 477 "                  | U            | 6                      | -0.0995               | 5 7 35.53             | -0.18                | +0.11                    | +1.47           |       | 36.93          | 5 3 36.06              | - 4 0.87                             |                                                               |                            |                                                   |                          |       |       |
|                      | W                       |                               | $\delta$ Ursæ Minoris  | L            | 2                      | +0.3600               | 6 10 5.00             | +0.57                | -0.21                    | -1.47           |       | 3.89           | 6 9 19.10              | - 0 44.79                            | -10.8                                                         |                            |                                                   |                          |       |       |
|                      | "                       |                               | 51 Cephei              | U            | 5                      | -0.4203               | 6 46 53.64            | -0.70                | +0.34                    | +1.47           | -0.23 | 54.52          | 6 46 18.17             | - 0 36.35                            | - 9.7                                                         |                            |                                                   |                          |       |       |
|                      | "                       | $\lambda$ Ursæ Minoris        | L                      | 1            | +1.1519                | 7 39 44.10            | +1.85                 | -0.76                | -1.47                    | -0.56           | 43.16 | 7 38 51.49     | - 0 51.67              |                                      |                                                               |                            |                                                   |                          |       |       |

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                  | Station                                 | Astronomical Date | Instrumental Position | Clock in use | Star                   | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit                                       | Corrections for |       |                |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deduced Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|----------------------|-----------------------------------------|-------------------|-----------------------|--------------|------------------------|-------------|-----------------------|----------------------|----------------------------------------------------------------|-----------------|-------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|--------------------------------------------------|--------------------------|
|                      |                                         |                   |                       |              |                        |             |                       |                      |                                                                | Collimation     | Level | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                                  |                          |
| AKYAB AND CHITTAGONG | CHITTAGONG (Latitude $22^{\circ} 20'$ ) | 1884<br>Jan. 2    | I. P. E.              | E            | 1556 Gr. 72            | L           | 5                     | +0.1610              | $h\ m\ s$<br>5 1 43.28                                         | +0.28           | +0.06 | +1.49          |                        | 45.11                                | 4 57 42.20                                                    | -4 2.91                    | -15.9                                            |                          |
|                      |                                         |                   |                       | "            | 477 "                  | U           | 6                     | -0.0995              | 5 7 33.57                                                      | -0.20           | -0.09 | +1.49          |                        | 34.77                                | 5 3 36.01                                                     | -3 58.76                   |                                                  |                          |
|                      |                                         |                   |                       | W            | $\delta$ Ursæ Minoris  | L           | 2                     | +0.3600              | 6 10 35.65                                                     | +0.65           | +0.17 | -1.49          |                        | 34.98                                | 6 9 18.38                                                     | -1 16.60                   | -17.8                                            | -17.3                    |
|                      |                                         |                   |                       | "            | 51 Cephei              | U           | 5                     | -0.4203              | 6 47 20.24                                                     | -0.79           | -0.28 | +1.49          | -0.23                  | 20.43                                | 6 46 17.75                                                    | -1 2.68                    | -18.2                                            |                          |
|                      |                                         | " 3               | I. P. W.              | "            | $\lambda$ Ursæ Minoris | L           | 1                     | +1.1519              | 7 40 18.40                                                     | +2.10           | +0.63 | -1.49          | -0.56                  | 19.08                                | 7 38 47.75                                                    | -1 31.33                   |                                                  |                          |
|                      |                                         |                   |                       | E            | 1556 Gr. 72            | L           | 5                     | +0.1610              | 5 1 41.94                                                      | +0.15           | +0.05 | +1.47          |                        | 43.61                                | 4 57 42.26                                                    | -4 1.35                    | -15.1                                            |                          |
|                      |                                         |                   |                       | "            | 477 "                  | U           | 6                     | -0.0995              | 5 7 32.12                                                      | -0.11           | -0.08 | +1.47          |                        | 33.40                                | 5 3 35.99                                                     | -3 57.41                   |                                                  |                          |
|                      |                                         |                   |                       | W            | $\delta$ Ursæ Minoris  | L           | 2                     | +0.3600              | 6 10 44.60                                                     | +0.34           | +0.15 | -1.47          |                        | 43.62                                | 6 9 18.40                                                     | -1 25.22                   | -17.8                                            | -18.2                    |
|                      |                                         | " 4               | I. P. W.              | "            | 51 Cephei              | U           | 5                     | -0.4203              | 6 47 28.48                                                     | -0.42           | -0.24 | +1.47          | -0.23                  | 29.06                                | 6 46 17.80                                                    | -1 11.26                   | -21.6                                            |                          |
|                      |                                         |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1519              | 7 40 32.95                                                     | +1.11           | +0.54 | -1.47          | -0.56                  | 32.57                                | 7 38 47.33                                                    | -1 45.24                   |                                                  |                          |
|                      |                                         |                   |                       | E            | 1556 Gr. 72            | L           | 3                     | +0.1610              | 5 1 42.23                                                      | +0.13           | +0.03 | +1.49          |                        | 43.88                                | 4 57 42.32                                                    | -4 1.56                    | -21.2                                            |                          |
|                      |                                         |                   |                       | "            | 477 "                  | U           | 6                     | -0.0995              | 5 7 30.68                                                      | -0.10           | -0.05 | +1.49          |                        | 32.02                                | 5 3 35.97                                                     | -3 56.05                   |                                                  |                          |
|                      |                                         | " 4               | I. P. W.              | W            | $\delta$ Ursæ Minoris  | L           | 2                     | +0.3600              | 6 10 57.40                                                     | +0.30           | +0.09 | -1.49          |                        | 56.30                                | 6 9 18.45                                                     | -1 37.85                   | -23.5                                            | -22.6                    |
|                      |                                         |                   |                       | "            | 51 Cephei              | U           | 5                     | -0.4203              | 6 47 36.58                                                     | -0.37           | -0.14 | +1.49          | -0.23                  | 37.33                                | 6 46 17.82                                                    | -1 19.51                   | -23.2                                            |                          |
|                      |                                         |                   |                       | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1519              | 7 40 43.70                                                     | +0.99           | +0.31 | -1.49          | -0.56                  | 42.95                                | 7 38 46.90                                                    | -1 55.96                   |                                                  |                          |
|                      |                                         |                   |                       |              |                        |             |                       |                      |                                                                |                 |       |                |                        |                                      |                                                               |                            |                                                  |                          |
| PROME AND CHITTAGONG | PROME (Latitude $18^{\circ} 49'$ )      | Jan. 21           | I. P. W.              | W            | 51 Cephei              | U           | 4                     | -0.4320              | $\begin{matrix} * (6\ 32\ 33.90) \\ 6\ 45\ 42.73 \end{matrix}$ | +0.46           | -0.70 | +1.46          |                        | 43.95                                | 6 46 17.54                                                    | +0 20.87†                  | -29.4                                            | -29.4                    |
|                      |                                         |                   |                       | "            | 815 Gr. 72             | U           | 3                     | -0.2608              | $\begin{matrix} * (8\ 7\ 35.77) \\ 8\ 20\ 44.41 \end{matrix}$  | -1.05           | -0.66 | +1.46          |                        | 44.16                                | 8 21 13.72                                                    | +0 29.56                   | -28.1                                            | -28.1                    |
|                      |                                         |                   |                       | E            | $\epsilon$ Argûs       | U           | 10                    | +0.0424              | 9 13 40.19                                                     | -0.16           | -0.05 | +1.46          | +0.09                  | 41.53                                | 9 14 2.56                                                     | +0 21.03                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4320              | $\begin{matrix} * (6\ 32\ 29.30) \\ 6\ 45\ 36.94 \end{matrix}$ | +0.19           | -0.62 | +1.48          |                        | 37.99                                | 6 46 17.45                                                    | +0 39.46                   | -37.7                                            | -37.7                    |
|                      |                                         | " 22              | I. P. E.              | E            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1748              | $\begin{matrix} * (8\ 7\ 36.80) \\ 7\ 39\ 2.25 \end{matrix}$   | -0.49           | +1.36 | +1.48          | +0.09                  | 4.69                                 | 7 38 43.61                                                    | -0 21.08                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 815 Gr. 72             | U           | 3                     | -0.2608              | $\begin{matrix} * (8\ 7\ 36.80) \\ 8\ 20\ 44.33 \end{matrix}$  | -1.76           | -0.68 | +1.48          |                        | 43.37                                | 8 21 13.76                                                    | +0 30.39                   | -22.3                                            | -22.3                    |
|                      |                                         |                   |                       | E            | $\epsilon$ Argûs       | U           | 10                    | +0.0424              | 9 13 37.69                                                     | -0.27           | -0.06 | +1.48          | +0.09                  | 38.93                                | 9 14 2.57                                                     | +0 23.64                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4320              | 6 45 59.77                                                     | -1.30           | -1.04 | +1.38          |                        | 58.81                                | 6 46 17.38                                                    | +0 18.57                   | +11.4                                            | +11.4                    |
|                      |                                         | " 23              | I. P. W.              | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1748              | $\begin{matrix} * (8\ 7\ 38.00) \\ 7\ 37\ 59.50 \end{matrix}$  | +3.45           | +2.30 | +1.38          | +0.09                  | 66.72                                | 7 38 43.59                                                    | +0 36.87                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 815 Gr. 72             | U           | 3                     | -0.2608              | $\begin{matrix} * (8\ 7\ 38.00) \\ 8\ 20\ 44.61 \end{matrix}$  | +0.26           | -0.39 | +1.38          |                        | 45.86                                | 8 21 13.81                                                    | +0 27.95                   | -5.1                                             | -5.1                     |
|                      |                                         |                   |                       | E            | $\epsilon$ Argûs       | U           | 10                    | +0.0424              | 9 13 34.69                                                     | +0.04           | -0.03 | +1.38          | +0.09                  | 36.17                                | 9 14 2.58                                                     | +0 26.41                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4320              | 6 45 40.87                                                     | +0.05           | +0.87 | +1.39          |                        | 43.18                                | 6 46 17.32                                                    | +0 34.14                   | -14.3                                            | -14.3                    |
|                      |                                         | " 24              | I. P. E.              | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1748              | $\begin{matrix} * (8\ 7\ 33.67) \\ 7\ 38\ 33.00 \end{matrix}$  | -0.12           | -1.92 | +1.39          | +0.09                  | 32.44                                | 7 38 43.55                                                    | +0 11.11                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 815 Gr. 72             | U           | 3                     | -0.2608              | $\begin{matrix} * (8\ 7\ 33.67) \\ 8\ 20\ 39.18 \end{matrix}$  | -0.71           | +0.47 | +1.39          |                        | 40.33                                | 8 21 13.86                                                    | +0 33.53                   | -17.6                                            | -17.6                    |
|                      |                                         |                   |                       | E            | $\epsilon$ Argûs       | U           | 10                    | +0.0424              | 9 13 33.00                                                     | -0.11           | +0.04 | +1.39          | +0.09                  | 34.41                                | 9 14 2.59                                                     | +0 28.18                   |                                                  |                          |
|                      |                                         |                   |                       | W            | 51 Cephei              | U           | 3                     | -0.4320              | 6 45 38.87                                                     | -1.81           | +0.53 | +1.39          |                        | 38.98                                | 6 46 17.25                                                    | +0 38.27                   | -24.4                                            | -24.4                    |
|                      |                                         | " 25              | I. P. W.              | "            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1748              | $\begin{matrix} * (8\ 7\ 29.78) \\ 7\ 38\ 39.40 \end{matrix}$  | +4.81           | -1.17 | +1.39          | +0.09                  | 44.52                                | 7 38 43.51                                                    | -0 1.01                    |                                                  |                          |
|                      |                                         |                   |                       | W            | 815 Gr. 72             | U           | 4                     | -0.2608              | $\begin{matrix} * (8\ 7\ 29.78) \\ 8\ 20\ 34.06 \end{matrix}$  | +0.54           | +0.56 | +1.39          |                        | 36.55                                | 8 21 13.91                                                    | +0 37.36                   | -23.9                                            | -23.9                    |
|                      |                                         |                   |                       | E            | $\epsilon$ Argûs       | U           | 10                    | +0.0424              | 9 13 30.89                                                     | +0.08           | +0.05 | +1.39          | +0.09                  | 32.50                                | 9 14 2.60                                                     | +0 30.10                   |                                                  |                          |

\* The Observed Time of Transit in brackets is that by W Clock, and the corresponding time by E Clock, as deduced from clock comparisons, is given below it.  
† True clock correction deduced from 22nd January.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

| Arc                                     | Station | Astronomical Date | Instrumental Position | Clock in use          | Star                   | Culmination | No. of Wires Observed                                  | Devia-<br>tion<br>Constant<br>A                        | Observed<br>Time of<br>Transit                                              | Corrections for  |       |                                                    |                                                             | Seconds of Corrected<br>Time of Transit                               | Right Ascension<br>(Increased by<br>12 hours for Lower<br>Culmination) | Apparent Clock<br>Corrections | Deducted Value of<br>Deviation<br>Correction $a_1$ | Arithmetic<br>Mean $a$ |
|-----------------------------------------|---------|-------------------|-----------------------|-----------------------|------------------------|-------------|--------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------------------------|------------------|-------|----------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------|----------------------------------------------------|------------------------|
|                                         |         |                   |                       |                       |                        |             |                                                        |                                                        |                                                                             | Colli-<br>mation | Level | Pen<br>Equa-<br>tion<br>Q                          | Approximate<br>Clock Rate                                   |                                                                       |                                                                        |                               |                                                    |                        |
| PROME (Latitude $18^{\circ} 49'$ )      |         |                   |                       |                       |                        |             |                                                        |                                                        |                                                                             |                  |       |                                                    |                                                             |                                                                       |                                                                        |                               |                                                    |                        |
| "                                       | Jan. 26 | 1884              | <i>I. P. E.</i>       | E                     | 51 Cephei              | U           | 3                                                      | -0.4320                                                | $\begin{smallmatrix} h & m & s \\ 6 & 45 & 31.30 \end{smallmatrix}$         | -1.07            | +0.51 | +1.70                                              |                                                             | $\begin{smallmatrix} s \\ 32.44 \end{smallmatrix}$                    | $\begin{smallmatrix} h & m & s \\ 6 & 46 & 17.17 \end{smallmatrix}$    | + 0 44.73                     | -28.2                                              | -28.2                  |
|                                         |         |                   | <i>I. P. E.</i>       | "                     | $\lambda$ Ursæ Minoris | L           | 2                                                      | +1.1748                                                | $\begin{smallmatrix} * (8 & 7 & 33.10) \\ 7 & 38 & 40.60 \end{smallmatrix}$ | +2.84            | -1.13 | +1.70                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 44.10 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 7 & 38 & 43.46 \end{smallmatrix}$            | - 0 0.64                      |                                                    |                        |
|                                         |         |                   | <i>I. P. W.</i>       | W                     | 815 Gr. 72             | U           | 3                                                      | -0.2608                                                | $\begin{smallmatrix} 8 & 20 & 35.86 \end{smallmatrix}$                      | -0.26            | +0.02 | +1.70                                              |                                                             | $\begin{smallmatrix} s \\ 37.32 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 8 & 21 & 13.94 \end{smallmatrix}$            | + 0 36.62                     | -13.3                                              | -13.3                  |
|                                         |         |                   | <i>I. P. W.</i>       | E                     | $\epsilon$ Argûs       | U           | 10                                                     | +0.0424                                                | $\begin{smallmatrix} 9 & 13 & 28.28 \end{smallmatrix}$                      | -0.04            | 0.00  | +1.70                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 30.03 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 9 & 14 & 2.61 \end{smallmatrix}$             | + 0 32.58                     |                                                    |                        |
|                                         |         |                   | <i>I. P. W.</i>       | E                     | 51 Cephei              | U           | 2                                                      | -0.4320                                                | $\begin{smallmatrix} 6 & 45 & 29.35 \end{smallmatrix}$                      | -1.16            | -0.79 | +1.61                                              |                                                             | $\begin{smallmatrix} s \\ 29.01 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 6 & 46 & 16.81 \end{smallmatrix}$            | + 0 47.80                     | -18.5                                              | -18.5                  |
|                                         |         |                   | <i>I. P. W.</i>       | "                     | $\lambda$ Ursæ Minoris | L           | 2                                                      | +1.1748                                                | $\begin{smallmatrix} * (8 & 7 & 28.73) \\ 7 & 38 & 19.10 \end{smallmatrix}$ | +3.08            | +1.73 | +1.61                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 25.61 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 7 & 38 & 43.64 \end{smallmatrix}$            | + 0 18.03                     |                                                    |                        |
|                                         |         |                   | <i>I. P. E.</i>       | W                     | 815 Gr. 72             | U           | 3                                                      | -0.2608                                                | $\begin{smallmatrix} 8 & 20 & 25.42 \end{smallmatrix}$                      | -0.11            | -0.99 | +1.61                                              |                                                             | $\begin{smallmatrix} s \\ 25.93 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 8 & 21 & 14.00 \end{smallmatrix}$            | + 0 48.07                     | -25.1                                              | -25.1                  |
|                                         |         |                   | <i>I. P. E.</i>       | E                     | $\epsilon$ Argûs       | U           | 9                                                      | +0.0424                                                | $\begin{smallmatrix} 9 & 13 & 20.59 \end{smallmatrix}$                      | -0.02            | -0.08 | +1.61                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 22.19 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 9 & 14 & 2.64 \end{smallmatrix}$             | + 0 40.45                     |                                                    |                        |
|                                         |         |                   | <i>I. P. E.</i>       | E                     | 51 Cephei              | U           | 3                                                      | -0.4320                                                | $\begin{smallmatrix} 6 & 45 & 36.13 \end{smallmatrix}$                      | -0.51            | +0.38 | +1.62                                              |                                                             | $\begin{smallmatrix} s \\ 37.62 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 6 & 46 & 16.63 \end{smallmatrix}$            | + 0 39.01                     | + 7.9                                              | + 7.9                  |
|                                         |         |                   | <i>I. P. E.</i>       | "                     | $\lambda$ Ursæ Minoris | L           | 2                                                      | +1.1748                                                | $\begin{smallmatrix} * (8 & 7 & 32.03) \\ 7 & 37 & 49.90 \end{smallmatrix}$ | +1.36            | -0.83 | +1.62                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 52.14 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 7 & 38 & 43.85 \end{smallmatrix}$            | + 0 51.71                     | - 3.3                                              | - 3.3                  |
|                                         |         |                   | <i>I. P. W.</i>       | W                     | 815 Gr. 72             | U           | 4                                                      | -0.2608                                                | $\begin{smallmatrix} 8 & 20 & 27.52 \end{smallmatrix}$                      | -0.37            | +0.63 | +1.62                                              |                                                             | $\begin{smallmatrix} s \\ 29.40 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 8 & 21 & 14.02 \end{smallmatrix}$            | + 0 44.62                     |                                                    |                        |
|                                         |         |                   | <i>I. P. W.</i>       | E                     | $\epsilon$ Argûs       | U           | 10                                                     | +0.0424                                                | $\begin{smallmatrix} 9 & 13 & 17.32 \end{smallmatrix}$                      | -0.06            | +0.05 | +1.62                                              | +0.09                                                       | $\begin{smallmatrix} s \\ 19.02 \end{smallmatrix}$                    | $\begin{smallmatrix} s \\ 9 & 14 & 2.65 \end{smallmatrix}$             | + 0 43.63                     |                                                    |                        |
| CHITTAGONG (Latitude $22^{\circ} 20'$ ) |         |                   |                       |                       |                        |             |                                                        |                                                        |                                                                             |                  |       |                                                    |                                                             |                                                                       |                                                                        |                               |                                                    |                        |
| "                                       | Jan. 21 | <i>I. P. W.</i>   | W                     | $\delta$ Ursæ Minoris | L                      | 3           | +0.3599                                                | $\begin{smallmatrix} 6 & 9 & 20.73 \end{smallmatrix}$  | +0.23                                                                       | -0.07            | +1.58 |                                                    | $\begin{smallmatrix} s \\ 22.47 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 9 & 19.75^{\dagger} \end{smallmatrix}$  | - 0 2.72                                                               | -11.3                         | -12.4                                              |                        |
|                                         |         |                   | "                     | 51 Cephei             | U                      | 3           | -0.4207                                                | $\begin{smallmatrix} 6 & 46 & 10.43 \end{smallmatrix}$ | -0.28                                                                       | +0.12            | +1.58 | +0.03                                              | $\begin{smallmatrix} s \\ 11.88 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 46 & 18.00^{\dagger} \end{smallmatrix}$ | + 0 6.12                                                               | -13.4                         |                                                    |                        |
|                                         |         |                   | "                     | 1902 Gr. 72           | L                      | 2           | +0.9871                                                | $\begin{smallmatrix} 8 & 11 & 48.95 \end{smallmatrix}$ | +0.63                                                                       | -0.23            | +1.58 | +0.09                                              | $\begin{smallmatrix} s \\ 51.02 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 11 & 38.22 \end{smallmatrix}$           | - 0 12.80                                                              |                               |                                                    |                        |
|                                         | " 22    | <i>I. P. E.</i>   | W                     | $\delta$ Ursæ Minoris | L                      | 3           | +0.3599                                                | $\begin{smallmatrix} 6 & 9 & 32.70 \end{smallmatrix}$  | +0.91                                                                       | -0.65            | +1.59 |                                                    | $\begin{smallmatrix} s \\ 34.55 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 9 & 20.04 \end{smallmatrix}$            | - 0 14.51                                                              | -45.1                         | -46.3                                              |                        |
|                                         |         |                   | "                     | 51 Cephei             | U                      | 3           | -0.4207                                                | $\begin{smallmatrix} 6 & 45 & 55.20 \end{smallmatrix}$ | -1.12                                                                       | +1.04            | +1.59 | +0.03                                              | $\begin{smallmatrix} s \\ 56.74 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 46 & 17.45 \end{smallmatrix}$           | + 0 20.71                                                              | -47.4                         |                                                    |                        |
|                                         |         |                   | "                     | 1902 Gr. 72           | L                      | 2           | +0.9871                                                | $\begin{smallmatrix} 8 & 12 & 20.00 \end{smallmatrix}$ | +2.54                                                                       | -2.02            | +1.59 |                                                    | $\begin{smallmatrix} s \\ 22.11 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 11 & 38.07 \end{smallmatrix}$           | - 0 44.04                                                              |                               |                                                    |                        |
|                                         | " 23    | <i>I. P. W.</i>   | "                     | 815 "                 | U                      | 3           | -0.2534                                                | $\begin{smallmatrix} 8 & 20 & 57.37 \end{smallmatrix}$ | -0.68                                                                       | +0.68            | +1.59 | +0.01                                              | $\begin{smallmatrix} s \\ 58.97 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 21 & 13.76 \end{smallmatrix}$           | + 0 14.79                                                              | -47.5                         | -48.1                                              |                        |
|                                         |         |                   | W                     | $\delta$ Ursæ Minoris | L                      | 3           | +0.3599                                                | $\begin{smallmatrix} 6 & 9 & 33.23 \end{smallmatrix}$  | -0.27                                                                       | -0.35            | +1.59 |                                                    | $\begin{smallmatrix} s \\ 34.20 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 9 & 20.17 \end{smallmatrix}$            | - 0 14.03                                                              | -48.6                         |                                                    |                        |
|                                         |         |                   | "                     | 51 Cephei             | U                      | 3           | -0.4207                                                | $\begin{smallmatrix} 6 & 45 & 51.83 \end{smallmatrix}$ | +0.33                                                                       | +0.55            | +1.59 | +0.03                                              | $\begin{smallmatrix} s \\ 54.33 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 46 & 17.38 \end{smallmatrix}$           | + 0 23.05                                                              |                               |                                                    |                        |
|                                         | " 24    | <i>I. P. E.</i>   | "                     | 1902 Gr. 72           | L                      | 2           | +0.9871                                                | $\begin{smallmatrix} 8 & 12 & 21.45 \end{smallmatrix}$ | -0.74                                                                       | -1.07            | +1.59 |                                                    | $\begin{smallmatrix} s \\ 21.23 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 11 & 37.92 \end{smallmatrix}$           | - 0 43.31                                                              | -45.6                         | -47.3                                              |                        |
|                                         |         |                   | "                     | 815 "                 | U                      | 3           | -0.2534                                                | $\begin{smallmatrix} 8 & 20 & 54.70 \end{smallmatrix}$ | +0.20                                                                       | +0.36            | +1.59 | +0.01                                              | $\begin{smallmatrix} s \\ 56.86 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 21 & 13.81 \end{smallmatrix}$           | + 0 16.95                                                              | -49.0                         |                                                    |                        |
|                                         |         |                   | W                     | $\delta$ Ursæ Minoris | L                      | 3           | +0.3599                                                | $\begin{smallmatrix} 6 & 9 & 31.17 \end{smallmatrix}$  | +0.80                                                                       | -0.94            | +1.61 |                                                    | $\begin{smallmatrix} s \\ 32.64 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 9 & 20.30 \end{smallmatrix}$            | - 0 12.34                                                              | -53.2                         | -54.5                                              |                        |
|                                         | " 25    | <i>I. P. W.</i>   | "                     | 51 Cephei             | U                      | 3           | -0.4207                                                | $\begin{smallmatrix} 6 & 45 & 51.87 \end{smallmatrix}$ | -0.98                                                                       | +1.50            | +1.61 | +0.03                                              | $\begin{smallmatrix} s \\ 54.03 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 46 & 17.32 \end{smallmatrix}$           | + 0 23.29                                                              | -55.7                         |                                                    |                        |
|                                         |         |                   | "                     | 1902 Gr. 72           | L                      | 1           | +0.9871                                                | $\begin{smallmatrix} 8 & 12 & 19.50 \end{smallmatrix}$ | +2.22                                                                       | -2.90            | +1.61 |                                                    | $\begin{smallmatrix} s \\ 20.43 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 11 & 37.77 \end{smallmatrix}$           | - 0 42.66                                                              |                               |                                                    |                        |
|                                         |         |                   | "                     | 815 "                 | U                      | 4           | -0.2534                                                | $\begin{smallmatrix} 8 & 20 & 53.75 \end{smallmatrix}$ | -0.60                                                                       | +0.98            | +1.61 | +0.01                                              | $\begin{smallmatrix} s \\ 55.75 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 21 & 13.86 \end{smallmatrix}$           | + 0 18.11                                                              |                               |                                                    |                        |
|                                         | " 25    | <i>I. P. W.</i>   | W                     | $\delta$ Ursæ Minoris | L                      | 3           | +0.3599                                                | $\begin{smallmatrix} 6 & 9 & 34.03 \end{smallmatrix}$  | -0.34                                                                       | -0.42            | +1.58 |                                                    | $\begin{smallmatrix} s \\ 34.85 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 9 & 20.44 \end{smallmatrix}$            | - 0 14.41                                                              |                               |                                                    |                        |
|                                         |         |                   | "                     | 51 Cephei             | U                      | 3           | -0.4207                                                | $\begin{smallmatrix} 6 & 45 & 47.40 \end{smallmatrix}$ | +0.42                                                                       | +0.67            | +1.58 | +0.03                                              | $\begin{smallmatrix} s \\ 50.10 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 6 & 46 & 17.25 \end{smallmatrix}$           | + 0 27.15                                                              |                               |                                                    |                        |
|                                         |         |                   | "                     | 1902 Gr. 72           | L                      | 2           | +0.9871                                                | $\begin{smallmatrix} 8 & 12 & 27.05 \end{smallmatrix}$ | -0.95                                                                       | -1.30            | +1.58 |                                                    | $\begin{smallmatrix} s \\ 26.38 \end{smallmatrix}$          | $\begin{smallmatrix} s \\ 8 & 11 & 37.60 \end{smallmatrix}$           | - 0 48.78                                                              |                               |                                                    |                        |
|                                         | "       | "                 | 815 "                 | U                     | 4                      | -0.2534     | $\begin{smallmatrix} 8 & 20 & 51.30 \end{smallmatrix}$ | +0.26                                                  | +0.44                                                                       | +1.58            | +0.01 | $\begin{smallmatrix} s \\ 53.59 \end{smallmatrix}$ | $\begin{smallmatrix} s \\ 8 & 21 & 13.91 \end{smallmatrix}$ | + 0 20.32                                                             |                                                                        |                               |                                                    |                        |

\* The Observed Time of Transit in brackets is that by W Clock, and the corresponding time by E Clock, as deduced from clock comparisons, is given below it.  
† Deduced from the Greenwich Nine-Year Catalogue for 1872.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

| Arc                  | Station                                 | Astronomical Date | Instrumental Position | Clock in use | Star                   | Culmination | No. of Wires Observed | Deviation Constant $A$ | Observed Time of Transit | Corrections for |       |                  |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $a_1$ | Arithmetic Mean $a$ |
|----------------------|-----------------------------------------|-------------------|-----------------------|--------------|------------------------|-------------|-----------------------|------------------------|--------------------------|-----------------|-------|------------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|----------------------------------------------|---------------------|
|                      |                                         |                   |                       |              |                        |             |                       |                        |                          | Collimation     | Level | Pen Equation $Q$ | Approximate Clock Rate |                                      |                                                               |                            |                                              |                     |
| PROME AND CHITTAGONG | CHITTAGONG (Latitude $22^{\circ} 20'$ ) | 1884<br>Jan. 26   | I. P. E.              | W            | $\delta$ Ursæ Minoris  | L           | 3                     | +0.3599                | 6 9 13.93                | +0.57           | +0.05 | +1.60            |                        | 16.15                                | 6 9 20.58                                                     | +0.4.43                    | - 3.9                                        | - 4.8               |
|                      |                                         |                   |                       | "            | 51 Cephei              | U           | 3                     | -0.4207                | 6 46 8.87                | -0.70           | -0.08 | +1.60            | +0.03                  | 9.72                                 | 6 46 17.17                                                    | +0.7.45                    | - 5.7                                        |                     |
|                      |                                         |                   |                       | "            | 1902 Gr. 72            | L           | 2                     | +0.9871                | 8 11 32.55               | +1.59           | +0.15 | +1.60            |                        | 35.89                                | 8 11 37.54                                                    | +0.1.65                    | - 5.7                                        |                     |
|                      |                                         |                   |                       | "            | 815 "                  | U           | 3                     | -0.2534                | 8 21 4.03                | -0.43           | -0.05 | +1.60            | +0.01                  | 5.16                                 | 8 21 13.94                                                    | +0.8.78                    | - 5.7                                        |                     |
|                      |                                         | " 29              | I. P. W.              | W            | $\delta$ Ursæ Minoris  | L           | 3                     | +0.3599                | 6 9 15.40                | +0.30           | +0.61 | +1.58            |                        | 17.89                                | 6 9 21.09                                                     | +0.3.20                    | -15.6                                        | -16.1               |
|                      |                                         |                   |                       | "            | 51 Cephei              | U           | 3                     | -0.4207                | 6 46 1.17                | -0.37           | -0.97 | +1.58            | +0.03                  | 1.44                                 | 6 46 16.81                                                    | +0.15.37                   | -16.6                                        |                     |
|                      |                                         |                   |                       | "            | 1902 Gr. 72            | L           | 2                     | +0.9871                | 8 11 39.45               | +0.85           | +1.87 | +1.58            |                        | 43.75                                | 8 11 37.36                                                    | -0.6.39                    | -16.6                                        |                     |
|                      |                                         |                   |                       | "            | 815 "                  | U           | 4                     | -0.2534                | 8 20 59.05               | -0.23           | -0.63 | +1.58            | +0.01                  | 59.78                                | 8 21 14.00                                                    | +0.14.22                   | -16.6                                        |                     |
|                      |                                         | " 30              | I. P. E.              | W            | $\delta$ Ursæ Minoris  | L           | 3                     | +0.3599                | 6 9 13.20                | +0.46           | -0.16 | +1.58            |                        | 15.08                                | 6 9 21.20†                                                    | +0.6.12                    | - 9.5                                        | - 9.3               |
|                      |                                         |                   |                       | "            | 51 Cephei              | U           | 3                     | -0.4207                | 6 46 1.93                | -0.56           | +0.26 | +1.58            | +0.03                  | 3.24                                 | 6 46 16.77†                                                   | +0.13.53                   | - 9.0                                        |                     |
|                      |                                         |                   |                       | "            | 1902 Gr. 72            | L           | 3                     | +0.9871                | 8 11 34.07               | +1.27           | -0.50 | +1.58            | +0.09                  | 36.51                                | 8 11 37.30                                                    | +0.0.79                    | - 9.0                                        |                     |
|                      |                                         |                   |                       | "            | "                      | "           | "                     | "                      | "                        | "               | "     | "                | "                      | "                                    | "                                                             | "                          | "                                            |                     |
| PROME AND AKYAB      | PROME (Latitude $18^{\circ} 49'$ )      | Feb. 8            | I. P. E.              | E            | $\lambda$ Ursæ Minoris | L           | 2                     | +1.1730                | 7 39 29.90               | -0.25           | -0.08 | +1.57            |                        | 31.14                                | 7 38 48.74†                                                   | -0.42.40                   | + 8.7                                        | + 8.7               |
|                      |                                         |                   | I. P. E.              | "            | 815 Gr. 72             | U           | 4                     | -0.2609                | 8 22 6.98                | +0.06           | +0.02 | +1.59            | +0.08                  | 8.73                                 | 8 21 13.88                                                    | -0.54.85                   | + 8.7                                        | + 8.7               |
|                      |                                         |                   | I. P. W.              | "            | 908* "                 | U           | 2                     | -0.1412                | 9 21 29.40               | -0.48           | -0.15 | +1.59            |                        | 30.36                                | 9 20 35.29                                                    | -0.55.07                   | + 8.7                                        | + 8.7               |
|                      |                                         |                   | I. P. W.              | W            | 981 "                  | U           | 3                     | -0.1699                | 10 7 41.30               | -0.57           | -0.17 | -1.59            |                        | 38.97                                | 10 16 58.33                                                   | +9.19.36                   | +11.6                                        | +11.6               |
|                      |                                         |                   | I. P. W.              | "            | 2109 "                 | L           | 3                     | +0.2795                | 10 12 48.73              | +0.87           | +0.15 | -1.59            | +0.02                  | 48.18                                | 10 22 12.75                                                   | +9.24.57                   | +11.6                                        | +11.6               |
|                      |                                         |                   | I. P. W.              | E            | $\lambda$ Ursæ Minoris | L           | 3                     | +1.1730                | 7 39 28.80               | +3.57           | +0.49 | +1.50            |                        | 34.36                                | 7 38 49.13†                                                   | -0.45.23                   | + 3.0                                        | + 3.0               |
|                      |                                         |                   | I. P. W.              | "            | 815 Gr. 72             | U           | 3                     | -0.2609                | 8 22 2.70                | -0.82           | -0.15 | +1.50            | +0.08                  | 3.31                                 | 8 21 13.82                                                    | -0.49.49                   | + 3.0                                        | + 3.0               |
|                      |                                         |                   | I. P. E.              | "            | 908* "                 | U           | 3                     | -0.1412                | 9 21 28.47               | -0.22           | -0.39 | +1.50            |                        | 29.36                                | 9 20 35.30                                                    | -0.54.06                   | + 3.0                                        | + 3.0               |
|                      |                                         | " 9               | I. P. E.              | W            | 981 "                  | U           | 4                     | -0.1699                | 10 7 36.08               | -0.26           | -0.44 | -1.50            |                        | 33.88                                | 10 16 58.38                                                   | +9.24.50                   | +21.2                                        | +21.2               |
|                      |                                         |                   | I. P. E.              | "            | 2109 "                 | L           | 3                     | +0.2795                | 10 12 39.33              | +0.40           | +0.39 | -1.50            | +0.02                  | 38.64                                | 10 22 12.67                                                   | +9.34.03                   | +21.2                                        | +21.2               |
|                      |                                         |                   | I. P. E.              | E            | $\lambda$ Ursæ Minoris | L           | 3                     | +1.1730                | 7 39 15.43               | -0.62           | -2.03 | +1.50            |                        | 14.28                                | 7 38 50.32†                                                   | -0.23.96                   | +15.3                                        | +15.3               |
|                      |                                         |                   | I. P. E.              | "            | 815 Gr. 72             | U           | 4                     | -0.2609                | 8 21 60.28               | +0.14           | +0.61 | -1.50            | +0.08                  | 59.61                                | 8 21 13.65                                                    | -0.45.96                   | +15.3                                        | +15.3               |
|                      |                                         |                   | I. P. W.              | "            | 908* "                 | U           | 5                     | -0.1412                | 9 21 21.12               | -0.06           | +0.43 | +1.50            |                        | 22.99                                | 9 20 35.33                                                    | -0.47.66                   | +15.3                                        | +15.3               |
|                      |                                         |                   | I. P. W.              | W            | 981 "                  | U           | 4                     | -0.1699                | 10 7 15.40               | -0.08           | +0.49 | -1.50            |                        | 14.31                                | 10 16 58.55                                                   | +9.44.24                   | +27.2                                        | +27.2               |
|                      |                                         |                   | I. P. W.              | "            | 2109 "                 | L           | 3                     | +0.2795                | 10 12 17.77              | +0.12           | -0.43 | -1.50            | +0.03                  | 15.99                                | 10 22 12.44                                                   | +9.56.45                   | +27.2                                        | +27.2               |
|                      |                                         |                   | I. P. W.              | E            | $\lambda$ Ursæ Minoris | L           | 3                     | +1.1730                | 7 39 36.30               | +1.60           | +2.18 | +1.50            |                        | 41.58                                | 7 38 50.71†                                                   | -0.50.87                   | - 9.9                                        | - 9.9               |
|                      |                                         | " 13              | I. P. W.              | "            | 815 Gr. 72             | U           | 3                     | -0.2609                | 8 21 49.70               | -0.37           | -0.65 | +1.50            | +0.08                  | 50.26                                | 8 21 13.59                                                    | -0.36.67                   | - 9.9                                        | - 9.9               |
|                      |                                         |                   | I. P. E.              | "            | 908* "                 | U           | 4                     | -0.1412                | 9 21 13.93               | +0.05           | -0.79 | +1.50            |                        | 14.69                                | 9 20 35.34                                                    | -0.39.35                   | - 9.9                                        | - 9.9               |
|                      |                                         |                   | I. P. E.              | W            | 981 "                  | U           | 4                     | -0.1699                | 10 7 2.63                | +0.06           | -0.90 | -1.50            |                        | 0.29                                 | 10 16 58.61                                                   | +9.58.32                   | - 2.3                                        | - 2.3               |
|                      |                                         |                   | I. P. E.              | "            | 2109 "                 | L           | 3                     | +0.2795                | 10 12 15.83              | -0.09           | +0.79 | -1.50            | +0.03                  | 15.06                                | 10 22 12.36                                                   | +9.57.30                   | - 2.3                                        | - 2.3               |

\* Not used.

† Deduced from the Greenwich Nine-Year Catalogue for 1872.



TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $a$ , FROM STAR OBSERVATIONS.

| Arc                                        | Station        | Astronomical Date      | Instrumental Position | Clock in use           | Star       | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit | Corrections for |          |             |             | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $a_1$ | Arithmetic Mean $a$ |
|--------------------------------------------|----------------|------------------------|-----------------------|------------------------|------------|-------------|-----------------------|----------------------|--------------------------|-----------------|----------|-------------|-------------|--------------------------------------|---------------------------------------------------------------|----------------------------|----------------------------------------------|---------------------|
|                                            |                |                        |                       |                        |            |             |                       |                      | <i>h m s</i>             | <i>s</i>        | <i>s</i> | <i>s</i>    | <i>s</i>    | <i>h m s</i>                         | <i>m s</i>                                                    | <i>d</i>                   | <i>d</i>                                     |                     |
| PROME AND AKYAB<br>AKYAB (Latitude 20° 8') | 1884<br>Feb. 8 | I. P. E.               | W                     | $\lambda$ Ursæ Minoris | L          | 2           | +1°16'40              | 7 38 59.50           | +0°49                    | -0°04           | +1°56    |             | 61°51       | 7 38 48.74*                          | -0 12.77                                                      | -16°5                      | -16°3                                        |                     |
|                                            |                |                        |                       | 815 Gr. 72             | U          | 5           | -0°25'83              | 8 21 1°58            | -0°11                    | +0°01           | +1°56    | +0°19       | 3°23        | 8 21 13.88                           | +0 10°65                                                      |                            |                                              |                     |
|                                            |                |                        |                       | 981 "                  | U          | 7           | -0°16'79              | 10 16 52.63          | -0°08                    | +0°01           | -1°56    |             | 51°00       | 10 16 58.33                          | +0 7°33                                                       | -16°1                      |                                              |                     |
|                                            |                |                        |                       | 2109 "                 | L          | 4           | +0°27'78              | 10 22 14°03          | +0°12                    | -0°01           | -1°56    | +0°02       | 12°60       | 10 22 12°75                          | +0 0°15                                                       |                            |                                              |                     |
|                                            |                | $\lambda$ Ursæ Minoris | L                     | 2                      | +1°16'40   | 7 38 50°75  | +3°57                 | +1°33                | +1°60                    |                 | 57°25    | 7 38 49°13* | -0 8°12     | -18°2                                |                                                               |                            |                                              |                     |
|                                            |                | 815 Gr. 72             | U                     | 4                      | -0°25'83   | 8 20 55°53  | -0°82                 | -0°39                | +1°60                    | +0°19           | 56°11    | 8 21 13°82  | +0 17°71    | -16°1                                |                                                               |                            |                                              |                     |
|                                            |                | 981 "                  | U                     | 6                      | -0°16'79   | 10 16 46°78 | -0°55                 | -0°28                | -1°60                    |                 | 44°35    | 10 16 58°38 | +0 14°03    | -14°0                                |                                                               |                            |                                              |                     |
|                                            |                | 2109 "                 | L                     | 4                      | +0°27'78   | 10 22 5°35  | +0°84                 | +0°26                | -1°60                    | +0°02           | 4°87     | 10 22 12°67 | +0 7°80     |                                      |                                                               |                            |                                              |                     |
|                                            | " 9            | I. P. W.               | W                     | $\lambda$ Ursæ Minoris | L          | 2           | +1°16'40              | 7 38 36°85           | +1°23                    | +0°85           | +1°60    |             | 40°53       | 7 38 50°32*                          | +0 9°79                                                       | -20°7                      |                                              |                     |
|                                            |                |                        |                       | 815 Gr. 72             | U          | 4           | -0°25'83              | 8 20 33°08           | -0°28                    | -0°25           | +1°60    | +0°24       | 34°39       | 8 21 13°65                           | +0 39°26                                                      | -19°9                      |                                              |                     |
|                                            |                |                        |                       | 981 "                  | U          | 8           | -0°16'79              | 10 16 24°39          | -0°19                    | -0°18           | -1°60    |             | 22°42       | 10 16 58°55                          | +0 36°13                                                      | -19°0                      |                                              |                     |
|                                            |                |                        |                       | 2109 "                 | L          | 4           | +0°27'78              | 10 21 45°88          | +0°29                    | +0°16           | -1°60    | +0°03       | 44°76       | 10 22 12°44                          | +0 27°68                                                      |                            |                                              |                     |
|                                            |                | $\lambda$ Ursæ Minoris | L                     | 2                      | +1°16'40   | 7 38 28°30  | +2°06                 | +2°18                | +1°59                    |                 | 35°03    | 7 38 50°71* | +0 15°68    | -22°4                                |                                                               |                            |                                              |                     |
|                                            |                | 815 Gr. 72             | U                     | 4                      | -0°25'83   | 8 20 25°60  | -0°68                 | -0°64                | +1°59                    | +0°24           | 26°11    | 8 21 13°59  | +0 47°48    | -19°9                                |                                                               |                            |                                              |                     |
|                                            |                | 981 "                  | U                     | 8                      | -0°16'79   | 10 16 16°93 | -0°45                 | -0°46                | -1°59                    |                 | 14°43    | 10 16 58°61 | +0 44°18    | -17°4                                |                                                               |                            |                                              |                     |
|                                            |                | 2109 "                 | L                     | 4                      | +0°27'78   | 10 21 36°38 | +0°69                 | +0°42                | -1°59                    | +0°03           | 35°93    | 10 22 12°36 | +0 36°43    |                                      |                                                               |                            |                                              |                     |
|                                            | " 12<br>" 13   | I. P. E.               | W                     | 981 Gr. 72             | U          | 6           | -0°17'31              | 10 16 48°00          | -0°15                    | +0°09           | +1°58    |             | 49°52       | 10 16 58°72                          | +0 9°20                                                       | -5°6                       | -5°6                                         |                     |
|                                            |                |                        |                       | 2109 "                 | L          | 3           | +0°28'20              | 10 22 3°87           | +0°23                    | -0°07           | +1°58    | +0°04       | 5°65        | 10 22 12°32                          | +0 6°67                                                       |                            |                                              |                     |
|                                            |                |                        |                       | 981 Gr. 72             | U          | 6           | -0°17'31              | 10 16 32°33          | -0°53                    | -0°27           | +1°56    |             | 33°09       | 10 16 58°67                          | +0 25°58                                                      | -36°0                      | -36°0                                        |                     |
|                                            |                |                        |                       | 2109 "                 | L          | 4           | +0°28'20              | 10 22 0°55           | +0°81                    | +0°22           | +1°56    | +0°04       | 3°18        | 10 22 12°39                          | +0 9°21                                                       |                            |                                              |                     |
| I. P. W.                                   |                |                        |                       | E                      | 981 Gr. 72 | U           | 5                     | -0°17'31             | 10 16 21°06              | -0°51           | -0°18    | +1°55       |             | 21°02                                | 10 16 58°62                                                   | +0 36°70                   | -38°6                                        | -38°6               |
| I. P. W.                                   |                |                        |                       | "                      | 2109 "     | L           | 4                     | +0°28'20             | 10 21 50°80              | +0°78           | +0°14    | +1°55       | +0°04       | 53°31                                | 10 22 12°46                                                   | +0 19°15                   |                                              |                     |
| " 10                                       |                | I. P. E.               | W                     | 1191 "                 | U          | 2           | -0°20'04              | 12 38 54°70          | +0°87                    | -0°07           | -1°55    |             | 53°95       | 12 48 15°61                          | +9 21°66                                                      | -41°2                      | -41°5                                        |                     |
|                                            |                |                        |                       | 1192 "                 | U          | 2           | -0°20'03              | 12 39 2°15           | +0°87                    | -0°07           | -1°55    |             | 1°40        | 12 48 23°36                          | +9 21°06                                                      | -41°8                      |                                              |                     |
|                                            |                |                        |                       | 86 "                   | L          | 3           | +0°28'92              | 12 43 60°10          | -1°18                    | +0°06           | -1°55    | +0°01       | 57°44       | 12 52 58°94                          | +9 1°50                                                       |                            |                                              |                     |
|                                            |                | I. P. E.               | E                     | 981 Gr. 72             | U          | 6           | -0°17'31              | 10 16 9°53           | -0°23                    | -0°07           | +1°56    |             | 10°79       | 10 16 58°57                          | +0 47°78                                                      | -37°7                      | -37°7                                        |                     |
|                                            |                |                        |                       | 2109 "                 | L          | 4           | +0°28'20              | 10 21 39°90          | +0°35                    | +0°06           | +1°56    | +0°04       | 41°91       | 10 22 12°53                          | +0 30°62                                                      |                            |                                              |                     |
|                                            |                |                        |                       | I. P. W.               | W          | 1191 "      | U                     | 4                    | -0°20'04                 | 12 38 52°05     | +0°43    | -0°22       | -1°56       |                                      | 50°70                                                         | 12 48 15°68                | +9 24°98                                     | -42°1               |
| " 11                                       | I. P. W.       | "                      | 1192 "                | U                      | 4          | -0°20'03    | 12 38 59°75           | +0°43                | -0°22                    | -1°56           |          | 58°40       | 12 48 23°43 | +9 25°03                             | -42°2                                                         |                            |                                              |                     |
|                                            |                |                        | 86 "                  | L                      | 3          | +0°28'92    | 12 43 56°47           | -0°59                | +0°17                    | -1°56           | +0°01    | 54°50       | 12 52 58°85 | +9 4°35                              |                                                               |                            |                                              |                     |

\* Deduced from the Greenwich Nine-Year Catalogue for 1872.

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                                   | Station | Astronomical Date | Instrumental Position | Clock in use | Star       | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit | Corrections for |          |                |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|---------------------------------------|---------|-------------------|-----------------------|--------------|------------|-------------|-----------------------|----------------------|--------------------------|-----------------|----------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------------|
|                                       |         |                   |                       |              |            |             |                       |                      |                          | Collimation     | Level    | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                                   |                          |
| MOULMEIN (Latitude $16^{\circ} 30'$ ) |         |                   |                       |              |            |             |                       |                      |                          |                 |          |                |                        |                                      |                                                               |                            |                                                   |                          |
|                                       |         | 1884              |                       |              |            |             |                       |                      | <i>h m s</i>             | <i>s</i>        | <i>s</i> | <i>s</i>       | <i>s</i>               | <i>s h m s</i>                       | <i>m s</i>                                                    | <i>d</i>                   | <i>d</i>                                          |                          |
|                                       |         |                   | <i>I. P. W.</i>       | E            | 981 Gr. 72 | U           | 5                     | -0° 17 31            | 10 15 55.68              | +0° 55          | -0° 12   | +1° 59         |                        | 57° 70                               | 10 16 58.52                                                   | + 1 0 82                   | -44° 6                                            | -44° 6                   |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 2109 "     | L           | 3                     | +0° 28 20            | 10 21 31.20              | -0° 84          | +0° 10   | +1° 59         | +0° 04                 | 32° 09                               | 10 22 12.59                                                   | + 0 40° 50                 |                                                   |                          |
|                                       | Mar. 12 |                   | <i>I. P. E.</i>       | W            | 1191 "     | U           | 4                     | -0° 20 04            | 12 38 51.10              | -0° 28          | -0° 04   | -1° 59         |                        | 49° 19                               | 12 48 15.75                                                   | + 9 26° 56                 | -41° 9                                            | -42° 0                   |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 1192 "     | U           | 4                     | -0° 20 03            | 12 38 58.75              | -0° 28          | -0° 04   | -1° 59         |                        | 56° 84                               | 12 48 23.50                                                   | + 9 26° 66                 | -42° 1                                            |                          |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 86 "       | L           | 4                     | +0° 28 92            | 12 43 53.85              | +0° 38          | +0° 03   | -1° 59         | +0° 08                 | 52° 68                               | 12 52 58.75                                                   | + 9 6° 07                  |                                                   |                          |
|                                       |         |                   | <i>I. P. E.</i>       | E            | 981 Gr. 72 | U           | 5                     | -0° 17 31            | 10 15 44.90              | -0° 19          | +0° 13   | +1° 61         |                        | 46° 45                               | 10 16 58.47                                                   | + 1 12° 02                 | -41° 0                                            | -41° 0                   |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 2109 "     | L           | 4                     | +0° 28 20            | 10 21 17.50              | +0° 29          | -0° 10   | +1° 61         | +0° 04                 | 19° 34                               | 10 22 12.69                                                   | + 0 53° 35                 |                                                   |                          |
|                                       | " 13    |                   | <i>I. P. W.</i>       | W            | 1191 "     | U           | 4                     | -0° 20 04            | 12 38 45.38              | +0° 98          | +0° 23   | -1° 61         |                        | 44° 98                               | 12 48 15.83                                                   | + 9 30° 85                 | -54° 3                                            | -54° 8                   |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 1192 "     | U           | 4                     | -0° 20 03            | 12 38 52.63              | +0° 98          | +0° 23   | -1° 61         |                        | 52° 23                               | 12 48 23.58                                                   | + 9 31° 35                 | -55° 3                                            |                          |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 86 "       | L           | 4                     | +0° 28 92            | 12 43 57.48              | -1° 33          | -0° 17   | -1° 61         | +0° 01                 | 54° 38                               | 12 52 58.66                                                   | + 9 4° 28                  |                                                   |                          |
|                                       |         |                   | <i>I. P. W.</i>       | E            | 981 Gr. 72 | U           | 5                     | -0° 17 31            | 10 15 28.46              | +0° 45          | +0° 04   | +1° 61         |                        | 30° 56                               | 10 16 58.41                                                   | + 1 27° 85                 | -58° 4                                            | -58° 4                   |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 2109 "     | L           | 4                     | +0° 28 20            | 10 21 10.58              | -0° 69          | -0° 04   | +1° 61         | +0° 04                 | 11° 50                               | 10 22 12.79                                                   | + 1 1° 29                  |                                                   |                          |
|                                       | " 14    |                   | <i>I. P. E.</i>       | W            | 1191 "     | U           | 1                     | -0° 20 04            | 12 38 44.80              | -0° 98          | -0° 07   | -1° 61         |                        | 42° 14                               | 12 48 15.90                                                   | + 9 33° 76                 | -63° 3                                            | -63° 8                   |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 1192 "     | U           | 1                     | -0° 20 03            | 12 38 52.10              | -0° 98          | -0° 07   | -1° 61         |                        | 49° 44                               | 12 48 23.65                                                   | + 9 34° 21                 | -64° 2                                            |                          |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 86 "       | L           | 3                     | +0° 28 92            | 12 43 56.03              | +1° 33          | +0° 06   | -1° 61         | +0° 01                 | 55° 82                               | 12 52 58.58                                                   | + 9 2° 76                  |                                                   |                          |
|                                       |         |                   | <i>I. P. E.</i>       | E            | 981 Gr. 72 | U           | 5                     | -0° 17 31            | 10 15 16.98              | -0° 41          | +0° 17   | +1° 60         |                        | 18° 34                               | 10 16 58.35                                                   | + 1 40° 01                 | -58° 0                                            | -58° 0                   |
|                                       |         |                   | <i>I. P. E.</i>       | "            | 2109 "     | L           | 4                     | +0° 28 20            | 10 20 57.15              | +0° 63          | -0° 14   | +1° 60         | +0° 04                 | 59° 28                               | 10 22 12.89                                                   | + 1 13° 61                 |                                                   |                          |
|                                       | " 15    |                   | <i>I. P. W.</i>       | W            | 1191 "     | U           | 4                     | -0° 20 04            | 12 38 41.08              | -0° 04          | +0° 03   | -1° 60         |                        | 39° 47                               | 12 48 15.97                                                   | + 9 36° 50                 | -63° 0                                            | -63° 2                   |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 1192 "     | U           | 4                     | -0° 20 03            | 12 38 48.68              | -0° 04          | +0° 03   | -1° 60         |                        | 47° 07                               | 12 48 23.72                                                   | + 9 36° 65                 | -63° 4                                            |                          |
|                                       |         |                   | <i>I. P. W.</i>       | "            | 86 "       | L           | 4                     | +0° 28 92            | 12 43 54.40              | +0° 06          | -0° 02   | -1° 60         | +0° 01                 | 52° 85                               | 12 52 58.49                                                   | + 9 5° 64                  |                                                   |                          |
| PROME (Latitude $18^{\circ} 49'$ )    |         |                   |                       |              |            |             |                       |                      |                          |                 |          |                |                        |                                      |                                                               |                            |                                                   |                          |
|                                       | Mar. 8  |                   | <i>I. P. W.</i>       | E            | 981 Gr. 72 | U           | 4                     | -0° 16 99            | 10 26 30.60              | -0° 13          | -0° 07   | +1° 67         |                        | 32° 07                               | 10 16 58.72                                                   | - 9 33° 35                 | +16° 8                                            | +16° 8                   |
|                                       |         |                   | "                     | "            | 2109 "     | L           | 3                     | +0° 27 93            | 10 31 36.17              | +0° 20          | +0° 06   | +1° 67         | +0° 04                 | 38° 14                               | 10 22 12.32                                                   | - 9 25° 82                 |                                                   |                          |
|                                       | " 9     |                   | <i>I. P. W.</i>       | E            | 981 Gr. 72 | U           | 5                     | -0° 16 99            | 10 26 20.76              | -0° 47          | -0° 25   | +1° 68         |                        | 21° 72                               | 10 16 58.67                                                   | - 9 23° 05                 | +18° 4                                            | +18° 4                   |
|                                       |         |                   | "                     | "            | 2109 "     | L           | 3                     | +0° 27 93            | 10 31 24.50              | +0° 72          | +0° 22   | +1° 68         | +0° 01                 | 27° 16                               | 10 22 12.39                                                   | - 9 14° 77                 |                                                   |                          |
|                                       |         |                   | "                     | E            | 981 Gr. 72 | U           | 4                     | -0° 16 99            | 10 26 10.43              | -0° 41          | -0° 15   | +1° 68         |                        | 11° 55                               | 10 16 58.62                                                   | - 9 12° 93                 | +26° 6                                            |                          |
|                                       |         |                   | "                     | "            | 2109 "     | L           | 5                     | +0° 27 93            | 10 31 10.96              | +0° 62          | +0° 13   | +1° 68         | +0° 04                 | 13° 44                               | 10 22 12.46                                                   | - 9 0° 98                  | +23° 4                                            |                          |
|                                       | " 10    |                   | <i>I. P. E.</i>       | W            | 1191 "     | U           | 3                     | -0° 19 69            | 12 48 46.67              | -0° 48          | -0° 16   | -1° 68         |                        | 44° 35                               | 12 48 15.61                                                   | - 0 28° 74                 | +20° 3                                            |                          |
|                                       |         |                   | "                     | "            | 1192 "     | U           | 3                     | -0° 19 67            | 12 48 54.37              | -0° 48          | -0° 16   | -1° 68         |                        | 52° 05                               | 12 48 23.36                                                   | - 0 28° 69                 | +20° 2                                            |                          |
|                                       |         |                   | "                     | "            | 86 "       | L           | 4                     | +0° 28 64            | 12 53 18.78              | +0° 62          | +0° 13   | -1° 68         | +0° 01                 | 17° 89                               | 12 52 58.94                                                   | - 0 18° 95                 |                                                   |                          |
|                                       |         |                   | "                     | E            | 981 Gr. 72 | U           | 4                     | -0° 16 99            | 10 25 59.90              | -0° 41          | -0° 24   | +1° 67         |                        | 60° 92                               | 10 16 58.57                                                   | - 9 2° 35                  | +28° 5                                            |                          |
|                                       |         |                   | "                     | "            | 2109 "     | L           | 3                     | +0° 27 93            | 10 30 59.53              | +0° 63          | +0° 21   | +1° 67         | +0° 04                 | 62° 08                               | 10 22 12.53                                                   | - 8 49° 55                 | +28° 4                                            |                          |
|                                       | " 11    |                   | <i>I. P. W.</i>       | W            | 1191 "     | U           | 3                     | -0° 19 69            | 12 48 45.83              | -0° 48          | -0° 26   | -1° 67         |                        | 43° 42                               | 12 48 15.68                                                   | - 0 27° 74                 | +27° 8                                            |                          |
|                                       |         |                   | "                     | "            | 1192 "     | U           | 3                     | -0° 19 67            | 12 48 54.03              | -0° 48          | -0° 26   | -1° 67         |                        | 51° 62                               | 12 48 23.43                                                   | - 0 28° 19                 | +28° 7                                            |                          |
|                                       |         |                   | "                     | "            | 86 "       | L           | 3                     | +0° 28 64            | 12 53 13.97              | +0° 65          | +0° 21   | -1° 67         | +0° 01                 | 13° 17                               | 12 52 58.85                                                   | - 0 14° 32                 |                                                   |                          |

TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                | Station                     | Astronomical Date | Instrumental Position | Clock in use | Star                  | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit     | Corrections for |        |                |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deduced Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|--------------------|-----------------------------|-------------------|-----------------------|--------------|-----------------------|-------------|-----------------------|----------------------|------------------------------|-----------------|--------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|--------------------------------------------------|--------------------------|
|                    |                             |                   |                       |              |                       |             |                       |                      |                              | Collimation     | Level  | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                                  |                          |
| MOULMEIN AND PROME | PROME (Latitude 18° 49')    | 1884<br>Mar. 12   | I. P. E.              | E            | 981 Gr. 72            | U           | 4                     | -0.1699              | h m s<br>10 25 46.28         | + 0.08          | + 0.25 | + 1.68         |                        | 48.29                                | 10 16 58.52                                                   | - 8 49.77                  | + 24.8                                           | + 20.5                   |
|                    |                             |                   |                       | "            | 2109 "                | L           | 3                     | + 0.2793             | 10 30 49.83                  | - 0.12          | - 0.21 | + 1.68         | + 0.04                 | 51.22                                | 10 22 12.59                                                   | - 8 38.63                  |                                                  |                          |
|                    |                             |                   |                       | W            | 1191 "                | U           | 3                     | -0.1969              | 12 48 41.00                  | + 0.09          | + 0.27 | - 1.68         |                        | 39.68                                | 12 48 15.75                                                   | - 0 23.93                  | + 15.8                                           |                          |
|                    |                             |                   |                       | "            | 1192 "                | U           | 3                     | -0.1967              | 12 48 49.10                  | + 0.09          | + 0.27 | - 1.68         |                        | 47.78                                | 12 48 23.50                                                   | - 0 24.28                  | + 16.6                                           |                          |
|                    |                             |                   |                       | "            | 86 "                  | L           | 4                     | + 0.2864             | 12 53 17.03                  | - 0.12          | - 0.22 | - 1.68         | + 0.01                 | 15.02                                | 12 52 58.75                                                   | - 0 16.27                  |                                                  |                          |
|                    |                             |                   |                       | E            | 981 Gr. 72            | U           | 4                     | -0.1699              | 10 25 35.00                  | - 0.51          | + 0.43 | + 1.68         |                        | 36.60                                | 10 16 58.47                                                   | - 8 38.13                  | + 24.0                                           |                          |
|                    |                             |                   |                       | "            | 2109 "                | L           | 3                     | + 0.2793             | 10 30 37.90                  | + 0.78          | - 0.38 | + 1.68         | + 0.04                 | 40.02                                | 10 22 12.69                                                   | - 8 27.33                  |                                                  |                          |
|                    |                             |                   |                       | W            | 1191 "                | U           | 3                     | -0.1969              | 12 48 40.60                  | - 0.59          | + 0.64 | - 1.68         |                        | 38.97                                | 12 48 15.83                                                   | - 0 23.14                  | + 21.1                                           |                          |
|                    |                             | " 13              | I. P. W.              | "            | 1192 "                | U           | 3                     | -0.1967              | 12 48 48.30                  | - 0.59          | + 0.64 | - 1.68         |                        | 46.67                                | 12 48 23.58                                                   | - 0 23.09                  | + 21.0                                           | + 22.5                   |
|                    |                             |                   |                       | "            | 86 "                  | L           | 4                     | + 0.2864             | 12 53 13.00                  | + 0.80          | - 0.52 | - 1.68         | + 0.01                 | 11.61                                | 12 52 58.66                                                   | - 0 12.95                  |                                                  |                          |
|                    |                             |                   |                       | E            | 981 Gr. 72            | U           | 4                     | -0.1699              | 10 25 22.03                  | - 0.21          | + 0.20 | + 1.69         |                        | 23.71                                | 10 16 58.41                                                   | - 8 25.30                  | + 24.2                                           |                          |
|                    |                             |                   |                       | "            | 2109 "                | L           | 3                     | + 0.2793             | 10 30 25.33                  | + 0.32          | - 0.17 | + 1.69         | + 0.04                 | 27.21                                | 10 22 12.79                                                   | - 8 14.42                  |                                                  |                          |
|                    |                             |                   |                       | W            | 1191 "                | U           | 3                     | -0.1969              | 12 48 39.07                  | - 0.24          | + 0.22 | - 1.69         |                        | 37.36                                | 12 48 15.90                                                   | - 0 21.46                  | + 22.6                                           |                          |
|                    |                             |                   |                       | "            | 1192 "                | U           | 3                     | -0.1967              | 12 48 46.63                  | - 0.24          | + 0.22 | - 1.69         |                        | 44.92                                | 12 48 23.65                                                   | - 0 21.27                  | + 22.3                                           |                          |
|                    |                             |                   |                       | "            | 86 "                  | L           | 3                     | + 0.2864             | 12 53 10.63                  | + 0.33          | - 0.18 | - 1.69         | + 0.01                 | 9.10                                 | 12 52 58.58                                                   | - 0 10.52                  |                                                  |                          |
|                    |                             |                   |                       | E            | 981 Gr. 72            | U           | 3                     | -0.1699              | 10 25 10.43                  | - 0.43          | - 0.30 | + 1.69         |                        | 11.39                                | 10 16 58.35                                                   | - 8 13.04                  | + 25.4                                           |                          |
|                    |                             | " 15              | I. P. W.              | "            | 2109 "                | L           | 3                     | + 0.2793             | 10 30 11.87                  | + 0.66          | + 0.26 | + 1.69         | + 0.04                 | 14.52                                | 10 22 12.89                                                   | - 8 1.63                   |                                                  | + 22.5                   |
|                    |                             |                   |                       | W            | 1191 "                | U           | 3                     | -0.1969              | 12 48 37.77                  | - 0.50          | - 0.34 | - 1.69         |                        | 35.24                                | 12 48 15.97                                                   | - 0 19.27                  | + 20.2                                           |                          |
|                    |                             |                   |                       | "            | 1192 "                | U           | 3                     | -0.1967              | 12 48 44.97                  | - 0.50          | - 0.34 | - 1.69         |                        | 42.44                                | 12 48 23.72                                                   | - 0 18.72                  | + 19.1                                           |                          |
|                    |                             |                   |                       | "            | 86 "                  | L           | 4                     | + 0.2864             | 12 53 8.73                   | + 0.68          | + 0.27 | - 1.69         | + 0.01                 | 8.00                                 | 12 52 58.49                                                   | - 0 9.51                   |                                                  |                          |
| MOULMEIN AND AKYAB | MOULMEIN (Latitude 16° 30') | Mar. 26           | I. P. E.              | E            | 2209 Gr. 72           | L           | 4                     | + 0.3769             | 11 27 40.58                  | + 0.08          | + 0.14 | + 1.61         |                        | 42.41                                | 11 27 38.36                                                   | - 0 4.05                   |                                                  | - 0.2                    |
|                    |                             |                   |                       | "            | 1109 "                | U           | 3                     | -0.3209              | 11 59 12.27                  | - 0.07          | - 0.19 | - 1.61         | - 0.05                 | 10.35                                | 11 59 6.58                                                    | - 0 3.77                   | - 0.4                                            |                          |
|                    |                             |                   |                       | W            | 1191 "                | U           | 4                     | -0.2005              | (12 29 22.33)<br>12 48 22.53 | - 0.04          | - 0.13 | - 1.61         | - 0.12                 | 20.63                                | 12 48 16.44                                                   | - 0 4.19                   | + 0.2                                            |                          |
|                    |                             |                   |                       | "            | 1192 "                | U           | 4                     | -0.2003              | (12 29 29.90)<br>12 48 30.10 | - 0.04          | - 0.13 | - 1.61         | - 0.12                 | 28.20                                | 12 48 24.19                                                   | - 0 4.01                   | - 0.1                                            |                          |
|                    |                             |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 3                     | + 0.9514             | 13 15 51.33                  | + 0.59          | + 0.83 | + 1.61         |                        | 54.36                                | 13 15 49.31†                                                  | - 0 5.05                   | - 0.9                                            |                          |
|                    |                             |                   |                       | "            | 1270 Gr. 72           | U           | 5                     | -0.1781              | 13 45 49.72                  | - 0.12          | - 0.24 | + 1.61         | - 0.04                 | 50.93                                | 13 45 46.87                                                   | - 0 4.06                   | - 0.9                                            |                          |
|                    |                             |                   |                       | E            | 2209 Gr. 72           | L           | 3                     | + 0.3769             | 11 27 35.20                  | + 10.95         | - 0.01 | + 1.60         |                        | 47.74                                | 11 27 38.48                                                   | - 0 9.26                   | - 8.8                                            |                          |
|                    |                             |                   |                       | "            | 1109 "                | U           | 2                     | -0.3209              | 11 59 10.85                  | + 0.44          | + 0.01 | - 1.60         | - 0.05                 | 9.65                                 | 11 59 6.52                                                    | - 0 3.13                   |                                                  |                          |
|                    |                             |                   |                       | W            | 1191 "                | U           | 4                     | -0.2005              | 12 29 20.20                  | + 0.28          | + 0.01 | - 1.60         |                        | 18.89                                | 12 48 16.45                                                   | + 18 57.56                 | - 6.5                                            |                          |
|                    |                             |                   |                       | "            | 1192 "                | U           | 4                     | -0.2003              | 12 29 28.08                  | + 0.28          | + 0.01 | - 1.60         |                        | 26.77                                | 12 48 24.20                                                   | + 18 57.43                 | - 6.3                                            |                          |
|                    |                             |                   |                       | "            | 86 "                  | L           | 4                     | + 0.2891             | 12 34 5.58                   | - 0.38          | - 0.01 | - 1.60         |                        | 3.59                                 | 12 52 57.95                                                   | + 18 54.36                 |                                                  |                          |
|                    |                             |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 1                     | + 0.9514             | 13 16 5.90                   | - 0.69          | - 0.08 | + 1.60         |                        | 6.73                                 | 13 15 49.22†                                                  | - 0 17.51                  | - 11.9                                           |                          |
|                    |                             |                   |                       | "            | 1270 Gr. 72           | U           | 2                     | -0.1781              | 13 45 49.30                  | + 0.14          | + 0.02 | + 1.60         | - 0.04                 | 51.02                                | 13 45 46.92                                                   | - 0 4.10                   | - 11.9                                           |                          |

\* The Observed Time of Transit in brackets is that by W Clock, and the corresponding time by E Clock, as deduced from clock comparisons, is given below it.  
† Deduced from the Greenwich Nine-Year Catalogue for 1872.



TABLE II. DEDUCTION OF DEVIATION CORRECTION,  $\alpha$ , FROM STAR OBSERVATIONS.

| Arc                                           | Station | Astronomical Date | Instrumental Position | Clock in use | Star                  | Culmination | No. of Wires Observed | Deviation Constant A | Observed Time of Transit                  | Corrections for |          |                |                        | Seconds of Corrected Time of Transit | Right Ascension (Increased by 12 hours for Lower Culmination) | Apparent Clock Corrections | Deducted Value of Deviation Correction $\alpha_1$ | Arithmetic Mean $\alpha$ |
|-----------------------------------------------|---------|-------------------|-----------------------|--------------|-----------------------|-------------|-----------------------|----------------------|-------------------------------------------|-----------------|----------|----------------|------------------------|--------------------------------------|---------------------------------------------------------------|----------------------------|---------------------------------------------------|--------------------------|
|                                               |         |                   |                       |              |                       |             |                       |                      |                                           | Collimation     | Level    | Pen Equation Q | Approximate Clock Rate |                                      |                                                               |                            |                                                   |                          |
|                                               |         |                   |                       |              |                       |             |                       |                      |                                           |                 |          |                |                        |                                      |                                                               |                            |                                                   |                          |
| MOULMEIN AND AKYAB<br>AKYAB (Latitude 20° 8') |         |                   |                       |              |                       |             |                       |                      |                                           |                 |          |                |                        |                                      |                                                               |                            |                                                   |                          |
|                                               |         | 1884              |                       |              |                       |             |                       |                      | <i>h m s</i>                              | <i>s</i>        | <i>s</i> | <i>s</i>       | <i>s</i>               | <i>s</i>                             | <i>h m s</i>                                                  | <i>m s</i>                 | <i>d</i>                                          | <i>d</i>                 |
|                                               |         |                   |                       | E            | 2209 Gr. 72           | L           | 3                     | +0.3706              | <sup>*</sup> (11 46 36.17)<br>11 27 36.27 | +0.23           | -0.19    | +1.77          |                        | 38.08                                | 11 27 38.36                                                   | + 0 0.28                   | - 1.2                                             |                          |
|                                               | Mar. 26 |                   | I. P. E.              | W            | 1191 "                | U           | 4                     | -0.1948              | 12 48 17.15                               | -0.13           | +0.16    | -1.77          | +0.05                  | 15.46                                | 12 48 16.44                                                   | + 0 0.98                   |                                                   | -1.2                     |
|                                               |         |                   |                       | "            | 1192 "                | U           | 4                     | -0.1947              | 12 48 24.83                               | -0.13           | +0.16    | -1.77          | +0.05                  | 23.14                                | 12 48 24.19                                                   | + 0 0.05                   | - 1.2                                             |                          |
|                                               |         |                   |                       | "            | 86 "                  | L           | 3                     | +0.2845              | 12 52 59.17                               | +0.18           | -0.14    | -1.77          | +0.05                  | 57.49                                | 12 52 57.96                                                   | + 0 0.47                   |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 3                     | +0.3706              | 11 27 39.40                               | +0.08           | +0.32    | -1.75          |                        | 38.05                                | 11 27 38.48                                                   | + 0 0.43                   | - 2.2                                             |                          |
|                                               | " 27    |                   | I. P. W.              | "            | 1109 "                | U           | 3                     | -0.3127              | 11 59 6.77                                | -0.07           | -0.40    | -1.75          | +0.02                  | 4.57                                 | 11 59 6.52                                                    | + 0 1.95                   |                                                   | -2.4                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 34 50.75                               | +0.20           | +0.92    | +1.75          |                        | 53.62                                | 13 15 49.22†                                                  | -19 4.40                   | - 2.6                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 4                     | -0.1729              | 14 4 47.03                                | -0.04           | -0.25    | +1.75          | -0.04                  | 48.45                                | 13 45 46.92                                                   | -19 1.53                   |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 4                     | +0.3706              | 11 27 35.55                               | +0.70           | +0.19    | +1.76          |                        | 38.20                                | 11 27 38.60                                                   | + 0 0.40                   | - 6.3                                             |                          |
|                                               | " 28    |                   | I. P. E.              | "            | 1109 "                | U           | 4                     | -0.3127              | 11 59 0.83                                | -0.62           | -0.24    | +1.76          | +0.02                  | 1.75                                 | 11 59 6.47                                                    | + 0 4.72                   |                                                   | -6.3                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 34 55.20                               | +1.77           | +0.54    | +1.76          |                        | 59.27                                | 13 15 49.14†                                                  | -19 10.13                  | - 6.3                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 5                     | -0.1729              | 14 4 48.96                                | -0.35           | -0.15    | +1.76          | -0.04                  | 50.18                                | 13 45 46.98                                                   | -19 3.20                   |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 3                     | +0.3706              | 11 27 33.60                               | -0.31           | -0.11    | +1.76          |                        | 34.94                                | 11 27 38.72                                                   | + 0 3.78                   | + 3.1                                             |                          |
|                                               | " 29    |                   | I. P. W.              | "            | 1109 "                | U           | 3                     | -0.3127              | 11 59 2.57                                | +0.27           | +0.14    | +1.76          | +0.02                  | 4.76                                 | 11 59 6.41                                                    | + 0 1.65                   |                                                   | +3.3                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 34 52.15                               | -0.79           | -0.32    | +1.76          |                        | 52.80                                | 13 15 49.05†                                                  | -19 3.75                   | + 3.5                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 4                     | -0.1729              | 14 4 52.73                                | +0.16           | +0.09    | +1.76          | -0.04                  | 54.70                                | 13 45 47.04                                                   | -19 7.66                   |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 4                     | +0.3706              | 11 27 34.43                               | +0.08           | +0.08    | +1.76          |                        | 36.35                                | 11 27 38.83                                                   | + 0 2.48                   | - 4.3                                             |                          |
|                                               | " 30    |                   | I. P. E.              | "            | 1109 "                | U           | 3                     | -0.3127              | 11 58 59.33                               | -0.07           | -0.10    | +1.76          | +0.02                  | 60.94                                | 11 59 6.36                                                    | + 0 5.42                   |                                                   | -4.4                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 35 0.55                                | +0.20           | +0.22    | +1.76          |                        | 2.73                                 | 13 15 48.96†                                                  | -19 13.77                  | - 4.4                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 4                     | -0.1729              | 14 4 54.33                                | -0.04           | -0.06    | +1.76          | -0.04                  | 55.95                                | 13 45 47.10                                                   | -19 8.85                   |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 4                     | +0.3706              | 11 27 32.80                               | -0.04           | -0.01    | +1.76          |                        | 34.51                                | 11 27 38.97                                                   | + 0 4.46                   | + 0.8                                             |                          |
|                                               | " 31    |                   | I. P. W.              | "            | 1109 "                | U           | 3                     | -0.3127              | 11 59 0.53                                | +0.03           | +0.01    | +1.76          | +0.02                  | 2.35                                 | 11 59 6.28                                                    | + 0 3.93                   |                                                   | +0.6                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 34 57.95                               | -0.10           | -0.03    | +1.76          |                        | 59.58                                | 13 15 48.88†                                                  | -19 10.70                  | + 0.4                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 4                     | -0.1729              | 14 4 56.50                                | +0.02           | +0.01    | +1.76          | -0.04                  | 58.25                                | 13 45 47.14                                                   | -19 11.11                  |                                                   |                          |
|                                               |         |                   |                       | W            | 2209 Gr. 72           | L           | 3                     | +0.3706              | 11 27 27.90                               | +0.58           | +0.19    | +1.76          |                        | 30.43                                | 11 27 39.11                                                   | + 0 8.68                   | + 6.3                                             |                          |
|                                               | Apr. 1  |                   | I. P. E.              | "            | 1109 "                | U           | 3                     | -0.3127              | 11 59 0.77                                | -0.51           | -0.24    | +1.76          | +0.02                  | 1.80                                 | 11 59 6.20                                                    | + 0 4.40                   |                                                   | +6.6                     |
|                                               |         |                   |                       | E            | $\alpha$ Ursæ Minoris | L           | 2                     | +0.9331              | 13 34 51.65                               | +1.48           | +0.54    | +1.76          |                        | 55.43                                | 13 15 48.79†                                                  | -19 6.64                   | + 6.8                                             |                          |
|                                               |         |                   |                       | "            | 1270 Gr. 72           | U           | 4                     | -0.1729              | 14 5 0.08                                 | -0.29           | -0.15    | +1.76          | -0.04                  | 1.36                                 | 13 45 47.19                                                   | -19 14.17                  |                                                   |                          |

\* The Observed Time of Transit in brackets is that by W Clock, and the corresponding time by E Clock, as deduced from clock comparisons, is given below it.  
† Deduced from the Greenwich Nine-Year Catalogue for 1872.

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, Q |                         |                         |                         |                         |                         |                         |                         |
|-----------------------------------------------|-------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                               | At W                                                              |                         | At E                    |                         | At W                    |                         | At E                    |                         |
|                                               | Q -                                                               | Q +                     | Q -                     | Q +                     | Q -                     | Q +                     | Q +                     | Q -                     |
| 1883<br>November 27                           | <i>s</i><br>0.84                                                  | <i>s</i><br>0.70        | <i>s</i><br>0.00        | <i>s</i><br>0.66        | <i>s</i><br>0.89        | <i>s</i><br>0.78        | <i>s</i><br>0.69        | <i>s</i><br>0.01        |
|                                               | .82                                                               | .70                     | .01                     | .68                     | .90                     | .74                     | .69                     | .00                     |
|                                               | .89                                                               | .71                     | .00                     | .64                     | .90                     | .75                     | .68                     | ...                     |
|                                               | .88                                                               | .79                     | .02                     | .67                     | .90                     | .78                     | .76                     | .03                     |
|                                               | .89                                                               | .72                     | .00                     | .61                     | .90                     | .71                     | .69                     | .01                     |
|                                               | .89                                                               | .73                     | .01                     | .65                     | .90                     | .80                     | .69                     | .00                     |
|                                               | .88                                                               | .70                     | .00                     | .66                     | .90                     | .72                     | .68                     | .01                     |
|                                               | .89                                                               | .71                     | .01                     | .68                     | .89                     | .72                     | .66                     | .00                     |
|                                               | .87                                                               | .70                     | .00                     | .64                     | .90                     | .72                     | .69                     | .01                     |
|                                               | .84                                                               | .72                     | .01                     | .69                     | .86                     | .74                     | .69                     | .00                     |
|                                               | .85                                                               | .71                     | .00                     | .63                     | .89                     | .73                     | .62                     | .02                     |
|                                               | .88                                                               | .73                     | .01                     | .68                     | .86                     | .73                     | .68                     | .00                     |
|                                               | .85                                                               | .73                     | .00                     | .63                     | .85                     | .72                     | .61                     | .01                     |
|                                               | .85                                                               | .75                     | .02                     | .68                     | .88                     | .72                     | .68                     | .00                     |
|                                               | .89                                                               | .72                     | .00                     | .63                     | .88                     | .71                     | .61                     | .02                     |
|                                               | .89                                                               | .78                     | .02                     | .67                     | .87                     | .71                     | .68                     | .01                     |
|                                               | .88                                                               | .71                     | .00                     | .68                     | .89                     | .76                     | .60                     | .04                     |
|                                               | .89                                                               | .74                     | .02                     | .69                     | .89                     | .72                     | .62                     | .01                     |
|                                               | .88                                                               | .70                     | .00                     | .64                     | .89                     | .72                     | .68                     | .02                     |
|                                               | .88                                                               | .72                     | .01                     | .69                     | .90                     | .72                     | .69                     | .04                     |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>4 6 49                                            | <i>h m s</i><br>4 9 44  | <i>h m s</i><br>4 10 57 | <i>h m s</i><br>4 16 48 | <i>h m s</i><br>5 9 47  | <i>h m s</i><br>5 12 44 | <i>h m s</i><br>5 11 10 | <i>h m s</i><br>5 13 48 |
|                                               | <i>s</i><br>+0.872                                                | <i>s</i><br>+0.724      | <i>s</i><br>+0.007      | <i>s</i><br>+0.660      | <i>s</i><br>+0.887      | <i>s</i><br>+0.735      | <i>s</i><br>+0.670      | <i>s</i><br>+0.013      |
|                                               | <i>h m s</i><br>3 48 48                                           | <i>h m s</i><br>3 51 46 | <i>h m s</i><br>3 53 0  | <i>h m s</i><br>3 58 48 | <i>h m s</i><br>4 51 46 | <i>h m s</i><br>4 54 46 | <i>h m s</i><br>4 53 10 | <i>h m s</i><br>4 55 51 |
|                                               | <i>s</i><br>+0.872                                                | <i>s</i><br>+0.724      |                         |                         | <i>s</i><br>+0.887      | <i>s</i><br>+0.735      |                         |                         |
| Difference                                    | <i>m s</i><br>18 0.128                                            | <i>m s</i><br>17 57.276 | <i>m s</i><br>17 57.007 | <i>m s</i><br>18 0.660  | <i>m s</i><br>18 0.113  | <i>m s</i><br>17 57.265 | <i>m s</i><br>18 0.670  | <i>m s</i><br>17 57.013 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i> |                         |                         |                         |                         |                         |                         |                         |
|-----------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                               | At W                                                                     |                         | At E                    |                         | At W                    |                         | At E                    |                         |
|                                               | <i>Q</i> -                                                               | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              | <i>Q</i> -              | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              |
| 1883<br>December 8                            | <i>s</i><br>0.80                                                         | <i>s</i><br>0.81        | <i>s</i><br>0.60        | <i>s</i><br>1.00        | <i>s</i><br>0.78        | <i>s</i><br>0.86        | <i>s</i><br>0.59        | <i>s</i><br>0.90        |
|                                               | .78                                                                      | .80                     | .61                     | 0.99                    | .82                     | .84                     | .59                     | .90                     |
|                                               | .80                                                                      | .80                     | .60                     | .99                     | .80                     | .90                     | .59                     | .91                     |
|                                               | .76                                                                      | .81                     | .61                     | .99                     | .81                     | .90                     | .60                     | .90                     |
|                                               | .81                                                                      | .82                     | .61                     | 1.00                    | .80                     | .90                     | .56                     | .92                     |
|                                               | .76                                                                      | .82                     | .60                     | 1.00                    | .80                     | .90                     | .60                     | .90                     |
|                                               | .80                                                                      | .82                     | .61                     | 0.99                    | .80                     | .89                     | .58                     | .92                     |
|                                               | .79                                                                      | .88                     | .61                     | 1.00                    | .82                     | .90                     | .60                     | .90                     |
|                                               | .80                                                                      | .82                     | .63                     | 1.00                    | .80                     | .90                     | .59                     | .91                     |
|                                               | .78                                                                      | .84                     | .60                     | 1.00                    | .82                     | .88                     | .60                     | .92                     |
|                                               | .80                                                                      | .88                     | .61                     | 1.00                    | .80                     | .89                     | .58                     | .94                     |
|                                               | .76                                                                      | .86                     | .60                     | 1.00                    | .81                     | .89                     | .59                     | .91                     |
|                                               | .79                                                                      | .84                     | .62                     | 1.00                    | .80                     | .90                     | .59                     | .94                     |
|                                               | .74                                                                      | .81                     | .60                     | 1.00                    | .86                     | .90                     | .60                     | .90                     |
|                                               | .78                                                                      | .90                     | .60                     | 1.00                    | .80                     | .90                     | .59                     | .92                     |
|                                               | .74                                                                      | .82                     | .60                     | 0.99                    | .81                     | .90                     | .60                     | .93                     |
|                                               | .79                                                                      | .81                     | .60                     | 1.00                    | .80                     | .90                     | .59                     | .92                     |
|                                               | .76                                                                      | .81                     | .60                     | 1.00                    | .82                     | .90                     | .60                     | .92                     |
|                                               | .80                                                                      | .82                     | .61                     | 0.99                    | .80                     | .88                     | .58                     | .91                     |
|                                               | .77                                                                      | .80                     | .60                     | 1.00                    | .81                     | .86                     | .60                     | .91                     |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>5 1 41                                                   | <i>h m s</i><br>5 5 11  | <i>h m s</i><br>5 5 48  | <i>h m s</i><br>5 6 37  | <i>h m s</i><br>5 54 10 | <i>h m s</i><br>5 56 45 | <i>h m s</i><br>5 55 41 | <i>h m s</i><br>5 58 36 |
|                                               | <i>s</i><br>+0.781                                                       | <i>s</i><br>+0.829      | <i>s</i><br>+0.606      | <i>s</i><br>+0.997      | <i>s</i><br>+0.808      | <i>s</i><br>+0.890      | <i>s</i><br>+0.591      | <i>s</i><br>+0.914      |
|                                               | <i>h m s</i><br>4 43 47                                                  | <i>h m s</i><br>4 47 20 | <i>h m s</i><br>4 47 55 | <i>h m s</i><br>4 48 48 | <i>h m s</i><br>5 36 16 | <i>h m s</i><br>5 38 54 | <i>h m s</i><br>5 37 48 | <i>h m s</i><br>5 40 47 |
|                                               | <i>s</i><br>+0.781                                                       | <i>s</i><br>+0.829      |                         |                         | <i>s</i><br>+0.808      | <i>s</i><br>+0.890      |                         |                         |
| Difference                                    | <i>m s</i><br>17 53.219                                                  | <i>m s</i><br>17 50.171 | <i>m s</i><br>17 53.606 | <i>m s</i><br>17 49.997 | <i>m s</i><br>17 53.192 | <i>m s</i><br>17 50.110 | <i>m s</i><br>17 53.591 | <i>m s</i><br>17 49.914 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, Q |                                 |                                |                                |                                 |                                 |                                 |                                |
|-----------------------------------------------|-------------------------------------------------------------------|---------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------------------------|
|                                               | At W                                                              |                                 | At E                           |                                | At W                            |                                 | At E                            |                                |
|                                               | Q -                                                               | Q +                             | Q +                            | Q -                            | Q -                             | Q +                             | Q +                             | Q -                            |
| 1888<br>December 9                            | s<br>0.63                                                         | s<br>0.70                       | s<br>0.76                      | s<br>0.10                      | s<br>0.69                       | s<br>0.70                       | s<br>0.70                       | s<br>0.10                      |
|                                               | .61                                                               | .71                             | .72                            | .10                            | .70                             | .72                             | .70                             | .08                            |
|                                               | .62                                                               | .70                             | .73                            | .11                            | .70                             | .71                             | .71                             | .10                            |
|                                               | .61                                                               | .70                             | .72                            | .10                            | .70                             | .78                             | .70                             | .09                            |
|                                               | .64                                                               | .68                             | .74                            | .10                            | .70                             | .73                             | .71                             | .09                            |
|                                               | .61                                                               | .70                             | .71                            | .09                            | .70                             | .78                             | .70                             | .08                            |
|                                               | .66                                                               | .70                             | .78                            | .10                            | .68                             | .71                             | .74                             | .09                            |
|                                               | .61                                                               | .72                             | .76                            | .10                            | .67                             | .77                             | .71                             | .08                            |
|                                               | .61                                                               | .69                             | .80                            | .11                            | .66                             | .71                             | .72                             | .10                            |
|                                               | .60                                                               | .70                             | .78                            | .10                            | .69                             | .73                             | .71                             | .07                            |
|                                               | .62                                                               | .70                             | .80                            | .10                            | .68                             | .71                             | .72                             | .10                            |
|                                               | .60                                                               | .70                             | .73                            | .09                            | .70                             | .78                             | .71                             | .06                            |
|                                               | .61                                                               | .68                             | .80                            | .10                            | .68                             | .72                             | .74                             | .09                            |
|                                               | .60                                                               | .70                             | .78                            | .10                            | .70                             | .77                             | .70                             | .08                            |
|                                               | .63                                                               | .69                             | .79                            | .10                            | .68                             | .73                             | .73                             | .09                            |
|                                               | .60                                                               | .71                             | .72                            | .10                            | .68                             | .79                             | .71                             | .08                            |
|                                               | .63                                                               | .70                             | .78                            | .09                            | .67                             | .74                             | .75                             | .08                            |
|                                               | .60                                                               | .72                             | .72                            | .10                            | .69                             | .78                             | .72                             | .08                            |
|                                               | .62                                                               | .70                             | .79                            | .10                            | .68                             | .72                             | .77                             | .09                            |
|                                               | .61                                                               | .70                             | .74                            | .10                            | .69                             | .78                             | .72                             | .08                            |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 1 41                                        | h m s<br>5 4 42                 | h m s<br>5 3 39<br>s<br>+0.758 | h m s<br>5 6 10<br>s<br>+0.100 | h m s<br>5 56 40                | h m s<br>5 59 10                | h m s<br>5 57 41<br>s<br>+0.719 | h m s<br>6 0 10<br>s<br>+0.086 |
|                                               | W Clock<br>h m s<br>4 43 48<br>s<br>+0.616                        | h m s<br>4 46 52<br>s<br>+0.700 | h m s<br>4 45 47               | h m s<br>4 48 21               | h m s<br>5 38 47<br>s<br>+0.687 | h m s<br>5 41 20<br>s<br>+0.743 | h m s<br>5 39 49                | h m s<br>5 42 21               |
| Difference                                    | m s<br>17 52.384                                                  | m s<br>17 49.300                | m s<br>17 52.758               | m s<br>17 49.100               | m s<br>17 52.313                | m s<br>17 49.257                | m s<br>17 52.719                | m s<br>17 49.086               |



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i> |                         |                         |                         |                         |                         |                         |                         |
|-----------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                               | At W                                                                     |                         | At E                    |                         | At W                    |                         | At E                    |                         |
|                                               | <i>Q</i> -                                                               | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              | <i>Q</i> -              | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              |
| 1883<br>December 10                           | <i>s</i><br>0'20                                                         | <i>s</i><br>0'18        | <i>s</i><br>0'21        | <i>s</i><br>0'60        | <i>s</i><br>0'28        | <i>s</i><br>0'18        | <i>s</i><br>0'20        | <i>s</i><br>0'54        |
|                                               | '20                                                                      | '20                     | '24                     | '59                     | '22                     | '19                     | '20                     | '60                     |
|                                               | '21                                                                      | '16                     | '20                     | '60                     | '24                     | '17                     | '20                     | '55                     |
|                                               | '20                                                                      | '20                     | '22                     | '59                     | '22                     | '18                     | '20                     | '60                     |
|                                               | '20                                                                      | '20                     | '20                     | '60                     | '22                     | '19                     | '20                     | '53                     |
|                                               | '22                                                                      | '18                     | '24                     | '58                     | '20                     | '20                     | '19                     | '58                     |
|                                               | '21                                                                      | '14                     | '20                     | '60                     | '20                     | '20                     | '20                     | '55                     |
|                                               | '23                                                                      | '18                     | '21                     | '60                     | '20                     | '19                     | '20                     | '60                     |
|                                               | '20                                                                      | '18                     | '21                     | '60                     | '21                     | '20                     | '21                     | '52                     |
|                                               | '20                                                                      | '19                     | '21                     | '59                     | '20                     | '19                     | '19                     | '58                     |
|                                               | '20                                                                      | '18                     | '20                     | '60                     | '20                     | '19                     | '20                     | '52                     |
|                                               | '21                                                                      | '18                     | '21                     | '58                     | '21                     | '20                     | '20                     | '58                     |
|                                               | '20                                                                      | '12                     | '20                     | '60                     | '21                     | '19                     | '21                     | '55                     |
|                                               | '22                                                                      | '16                     | '20                     | '58                     | '20                     | '20                     | '20                     | '57                     |
|                                               | '20                                                                      | '12                     | '19                     | '59                     | '21                     | '20                     | '20                     | '56                     |
|                                               | '21                                                                      | '18                     | '20                     | '57                     | '20                     | '20                     | '20                     | '59                     |
|                                               | '20                                                                      | '12                     | '20                     | '60                     | '19                     | '20                     | '20                     | '55                     |
|                                               | '21                                                                      | '14                     | '20                     | '59                     | '22                     | '20                     | '20                     | '60                     |
|                                               | '20                                                                      | '12                     | '20                     | '61                     | '28                     | '19                     | '20                     | '58                     |
|                                               | '20                                                                      | '12                     | '22                     | '59                     | '22                     | '18                     | '20                     | '58                     |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>5 1 18                                                   | <i>h m s</i><br>5 4 34  | <i>h m s</i><br>5 3 10  | <i>h m s</i><br>5 5 37  | <i>h m s</i><br>5 54 23 | <i>h m s</i><br>5 57 10 | <i>h m s</i><br>5 55 27 | <i>h m s</i><br>5 58 10 |
|                                               | <i>s</i><br>+0'206                                                       | <i>s</i><br>+0'163      | <i>s</i><br>+0'208      | <i>s</i><br>+0'593      | <i>s</i><br>+0'217      | <i>s</i><br>+0'192      | <i>s</i><br>+0'200      | <i>s</i><br>+0'567      |
|                                               | <i>h m s</i><br>4 43 26                                                  | <i>h m s</i><br>4 46 45 | <i>h m s</i><br>4 45 18 | <i>h m s</i><br>4 47 49 | <i>h m s</i><br>5 36 31 | <i>h m s</i><br>5 39 21 | <i>h m s</i><br>5 37 35 | <i>h m s</i><br>5 40 22 |
|                                               | <i>s</i><br>+0'206                                                       | <i>s</i><br>+0'163      |                         |                         | <i>s</i><br>+0'217      | <i>s</i><br>+0'192      |                         |                         |
| Difference                                    | <i>m s</i><br>17 51'794                                                  | <i>m s</i><br>17 48'837 | <i>m s</i><br>17 52'208 | <i>m s</i><br>17 48'593 | <i>m s</i><br>17 51'783 | <i>m s</i><br>17 48'808 | <i>m s</i><br>17 52'200 | <i>m s</i><br>17 48'567 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                   |                   |                   |                   |                   |                   |                   |
|-----------------------------------------------|-------------------------------------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                                               | At W                                                              |                   | At E              |                   | At W              |                   | At E              |                   |
|                                               | Q -                                                               | Q +               | Q +               | Q -               | Q -               | Q +               | Q +               | Q -               |
| 1883<br>December 11                           | s<br>0' 19                                                        | s<br>0' 17        | s<br>0' 22        | s<br>0' 60        | s<br>0' 18        | s<br>0' 10        | s<br>0' 26        | s<br>0' 59        |
|                                               | ' 20                                                              | ' 16              | ' 28              | ' 60              | ' 20              | ' 12              | ' 29              | ' 61              |
|                                               | ' 20                                                              | ' 15              | ' 25              | ' 58              | ' 16              | ' 10              | ' 24              | ' 60              |
|                                               | ' 20                                                              | ' 12              | ' 30              | ' 60              | ' 19              | ' 10              | ' 30              | ' 61              |
|                                               | ' 16                                                              | ' 14              | ' 25              | ' 60              | ' 19              | ' 10              | ' 27              | ' 60              |
|                                               | ' 18                                                              | ' 12              | ' 28              | ' 61              | ' 20              | ' 12              | ' 29              | ' 60              |
|                                               | ' 16                                                              | ' 12              | ' 28              | ' 60              | ' 20              | ' 11              | ' 28              | ' 60              |
|                                               | ' 20                                                              | ' 10              | ' 30              | ' 60              | ' 20              | ' 12              | ' 30              | ' 61              |
|                                               | ' 20                                                              | ' 12              | ' 29              | ' 60              | ' 18              | ' 12              | ' 25              | ' 60              |
|                                               | ' 20                                                              | ' 13              | ' 30              | ' 60              | ' 19              | ' 12              | ' 30              | ' 60              |
|                                               | ' 20                                                              | ' 12              | ' 25              | ' 58              | ' 19              | ' 10              | ' 24              | ' 58              |
|                                               | ' 20                                                              | ' 12              | ' 28              | ' 60              | ' 20              | ' 12              | ' 30              | ' 60              |
|                                               | ' 19                                                              | ' 13              | ' 27              | ' 60              | ' 20              | ' 10              | ' 23              | ' 60              |
|                                               | ' 20                                                              | ' 11              | ' 28              | ' 60              | ' 20              | ' 14              | ' 29              | ' 60              |
|                                               | ' 20                                                              | ' 12              | ' 22              | ' 60              | ' 18              | ' 12              | ' 22              | ' 60              |
|                                               | ' 20                                                              | ' 10              | ' 28              | ' 60              | ' 20              | ' 12              | ' 29              | ' 61              |
|                                               | ' 15                                                              | ' 10              | ' 26              | ' 60              | ' 19              | ' 10              | ' 21              | ' 60              |
|                                               | ' 16                                                              | ' 10              | ' 29              | ' 61              | ' 20              | ' 10              | ' 29              | ' 61              |
|                                               | ' 13                                                              | ' 11              | ' 28              | ' 60              | ' 19              | ' 09              | ' 26              | ' 60              |
|                                               | ' 15                                                              | ' 12              | ' 29              | ' 61              | ' 20              | ' 13              | ' 28              | ' 61              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 0 58                                        | h m s<br>5 4 21   | h m s<br>5 3 24   | h m s<br>5 6 10   | h m s<br>5 54 10  | h m s<br>5 58 10  | h m s<br>5 56 10  | h m s<br>5 59 10  |
|                                               |                                                                   |                   | s<br>+0' 273      | s<br>+0' 600      |                   |                   | s<br>+0' 270      | s<br>+0' 602      |
|                                               | W Clock<br>h m s<br>4 43 6                                        | h m s<br>4 46 32  | h m s<br>4 45 32  | h m s<br>4 48 22  | h m s<br>5 36 18  | h m s<br>5 40 21  | h m s<br>5 38 18  | h m s<br>5 41 22  |
|                                               | s<br>+0' 184                                                      | s<br>+0' 123      |                   |                   | s<br>+0' 192      | s<br>+0' 112      |                   |                   |
| Difference                                    | m s<br>17 51' 816                                                 | m s<br>17 48' 877 | m s<br>17 52' 273 | m s<br>17 48' 600 | m s<br>17 51' 808 | m s<br>17 48' 888 | m s<br>17 52' 270 | m s<br>17 48' 602 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, $Q$ |                      |                      |                      |                      |                      |                      |                      |
|-----------------------------------------------|---------------------------------------------------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                                               | At W                                                                |                      | At E                 |                      | At W                 |                      | At E                 |                      |
|                                               | $Q -$                                                               | $Q +$                | $Q +$                | $Q -$                | $Q -$                | $Q +$                | $Q +$                | $Q -$                |
| 1883<br>December 12                           | $s$<br>0.76                                                         | $s$<br>0.70          | $s$<br>0.69          | $s$<br>1.02          | $s$<br>0.71          | $s$<br>0.70          | $s$<br>0.70          | $s$<br>0.01          |
|                                               | .81                                                                 | .80                  | .70                  | 1.00                 | .76                  | .72                  | .70                  | .00                  |
|                                               | .80                                                                 | .75                  | .66                  | 1.01                 | .74                  | .70                  | .70                  | .02                  |
|                                               | .80                                                                 | .79                  | .70                  | 1.00                 | .78                  | .78                  | .69                  | .00                  |
|                                               | .79                                                                 | .78                  | .68                  | 1.01                 | .74                  | .72                  | .70                  | .02                  |
|                                               | .80                                                                 | .80                  | .70                  | 0.99                 | .80                  | .77                  | .70                  | .00                  |
|                                               | .79                                                                 | .72                  | .68                  | 1.01                 | .80                  | .71                  | .70                  | .01                  |
|                                               | .82                                                                 | .78                  | .70                  | 1.00                 | .78                  | .74                  | .70                  | .00                  |
|                                               | .79                                                                 | .71                  | .66                  | 1.01                 | .78                  | .71                  | .70                  | .03                  |
|                                               | .85                                                                 | .78                  | .70                  | 0.99                 | .79                  | .77                  | .70                  | .00                  |
|                                               | .80                                                                 | .75                  | .65                  | 1.01                 | .78                  | .71                  | .72                  | .02                  |
|                                               | .81                                                                 | .79                  | .70                  | 0.99                 | .80                  | .80                  | .71                  | .00                  |
|                                               | .81                                                                 | .79                  | .67                  | 1.01                 | .77                  | .70                  | .72                  | .01                  |
|                                               | .80                                                                 | .79                  | .70                  | 0.99                 | .80                  | .79                  | .70                  | .00                  |
|                                               | .79                                                                 | .78                  | .68                  | 1.00                 | .78                  | .72                  | .71                  | .01                  |
|                                               | .80                                                                 | .80                  | .70                  | 0.98                 | .80                  | .78                  | .70                  | .00                  |
|                                               | .79                                                                 | .78                  | .67                  | 1.01                 | .78                  | .71                  | .71                  | .01                  |
|                                               | .80                                                                 | .80                  | .70                  | 1.00                 | .80                  | .80                  | .70                  | .00                  |
|                                               | .78                                                                 | .72                  | .69                  | 1.01                 | .77                  | .72                  | .70                  | .02                  |
|                                               | .80                                                                 | .77                  | .70                  | 1.00                 | .78                  | .75                  | .70                  | .00                  |
| Corresponding<br>Mean<br>Observed<br>Times by | $h\ m\ s$<br>5 2 26                                                 | $h\ m\ s$<br>5 5 10  | $h\ m\ s$<br>5 4 10  | $h\ m\ s$<br>5 7 9   | $h\ m\ s$<br>5 55 10 | $h\ m\ s$<br>5 57 32 | $h\ m\ s$<br>5 56 39 | $h\ m\ s$<br>5 59 10 |
|                                               | $s$<br>+0.800                                                       | $s$<br>+0.769        | $s$<br>+0.687        | $s$<br>+1.002        | $s$<br>+0.777        | $s$<br>+0.740        | $s$<br>+0.703        | $s$<br>+0.008        |
|                                               | $h\ m\ s$<br>4 44 33                                                | $h\ m\ s$<br>4 47 20 | $h\ m\ s$<br>4 46 18 | $h\ m\ s$<br>4 49 21 | $h\ m\ s$<br>5 37 17 | $h\ m\ s$<br>5 39 42 | $h\ m\ s$<br>5 38 47 | $h\ m\ s$<br>5 41 21 |
|                                               | $s$<br>+0.800                                                       | $s$<br>+0.769        | $s$<br>+0.687        | $s$<br>+1.002        | $s$<br>+0.777        | $s$<br>+0.740        | $s$<br>+0.703        | $s$<br>+0.008        |
| Difference                                    | $m\ s$<br>17 52.200                                                 | $m\ s$<br>17 49.231  | $m\ s$<br>17 52.687  | $m\ s$<br>17 49.002  | $m\ s$<br>17 52.223  | $m\ s$<br>17 49.260  | $m\ s$<br>17 52.703  | $m\ s$<br>17 49.008  |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, <i>Q</i> |                         |                         |                         |                         |                         |                         |                         |
|-----------------------------------------------|--------------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                               | At W                                                                     |                         | At E                    |                         | At W                    |                         | At E                    |                         |
|                                               | <i>Q</i> -                                                               | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              | <i>Q</i> -              | <i>Q</i> +              | <i>Q</i> +              | <i>Q</i> -              |
| 1883<br>December 13                           | <i>s</i><br>0'32                                                         | <i>s</i><br>0'30        | <i>s</i><br>0'18        | <i>s</i><br>0'50        | <i>s</i><br>0'31        | <i>s</i><br>0'30        | <i>s</i><br>0'14        | <i>s</i><br>0'50        |
|                                               | '31                                                                      | '29                     | '12                     | '48                     | '39                     | '30                     | '11                     | '49                     |
|                                               | '32                                                                      | '29                     | '19                     | '50                     | '31                     | '30                     | '15                     | '51                     |
|                                               | '32                                                                      | '30                     | '13                     | '46                     | '40                     | '30                     | '11                     | '50                     |
|                                               | '30                                                                      | '29                     | '18                     | '49                     | '32                     | '33                     | '16                     | '50                     |
|                                               | '31                                                                      | '30                     | '12                     | '44                     | '36                     | '30                     | '10                     | '50                     |
|                                               | '31                                                                      | '30                     | '17                     | '50                     | '33                     | '28                     | '16                     | '50                     |
|                                               | '30                                                                      | '30                     | '12                     | '48                     | '30                     | '27                     | '11                     | '49                     |
|                                               | '31                                                                      | '30                     | '16                     | '50                     | '39                     | '38                     | '14                     | '50                     |
|                                               | '37                                                                      | '31                     | '13                     | '46                     | '32                     | '25                     | '10                     | '50                     |
|                                               | '30                                                                      | '30                     | '17                     | '49                     | '30                     | '30                     | '10                     | '50                     |
|                                               | '30                                                                      | '30                     | '13                     | '47                     | '30                     | '23                     | '09                     | '48                     |
|                                               | '35                                                                      | '30                     | '18                     | '49                     | ...                     | '30                     | '15                     | '49                     |
|                                               | '34                                                                      | '30                     | '11                     | '47                     | ...                     | '26                     | '12                     | '44                     |
|                                               | '30                                                                      | '29                     | '17                     | '49                     | '35                     | '30                     | '20                     | '47                     |
|                                               | '36                                                                      | '31                     | '11                     | '48                     | '31                     | '25                     | '18                     | '49                     |
|                                               | '34                                                                      | '30                     | '15                     | '48                     | '31                     | '30                     | '17                     | '50                     |
|                                               | '39                                                                      | '30                     | '12                     | '48                     | ...                     | '28                     | '11                     | '48                     |
|                                               | '30                                                                      | '30                     | '15                     | '50                     | ...                     | '28                     | '18                     | '49                     |
|                                               | '33                                                                      | '30                     | '13                     | '49                     | '41                     | '28                     | '18                     | '49                     |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>5 2 10                                                   | <i>h m s</i><br>5 5 10  | <i>h m s</i><br>5 4 10  | <i>h m s</i><br>5 7 10  | <i>h m s</i><br>5 54 24 | <i>h m s</i><br>5 57 31 | <i>h m s</i><br>5 56 10 | <i>h m s</i><br>5 59 10 |
|                                               | <i>s</i><br>+0'324                                                       | <i>s</i><br>+0'299      | <i>s</i><br>+0'146      | <i>s</i><br>+0'483      | <i>s</i><br>+0'338      | <i>s</i><br>+0'290      | <i>s</i><br>+0'138      | <i>s</i><br>+0'486      |
|                                               | <i>h m s</i><br>4 44 17                                                  | <i>h m s</i><br>4 47 20 | <i>h m s</i><br>4 46 17 | <i>h m s</i><br>4 49 21 | <i>h m s</i><br>5 36 31 | <i>h m s</i><br>5 39 41 | <i>h m s</i><br>5 38 17 | <i>h m s</i><br>5 41 21 |
|                                               | <i>s</i><br>+0'324                                                       | <i>s</i><br>+0'299      |                         |                         | <i>s</i><br>+0'338      | <i>s</i><br>+0'290      |                         |                         |
| Difference                                    | <i>m s</i><br>17 52'676                                                  | <i>m s</i><br>17 49'701 | <i>m s</i><br>17 53'146 | <i>m s</i><br>17 49'483 | <i>m s</i><br>17 52'662 | <i>m s</i><br>17 49'710 | <i>m s</i><br>17 53'138 | <i>m s</i><br>17 49'486 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1883<br>December 14                           | s<br>0'10                                                         | s<br>0'03        | s<br>0'40        | s<br>0'70        | s<br>0'10        | s<br>0'08        | s<br>0'40        | s<br>0'70        |
|                                               | '08                                                               | '02              | '40              | '69              | '10              | '10              | '40              | '68              |
|                                               | '10                                                               | '03              | '40              | '70              | '10              | '12              | '40              | '70              |
|                                               | '09                                                               | '01              | '38              | '70              | '10              | '12              | '40              | '70              |
|                                               | '08                                                               | '06              | '40              | '70              | '12              | '10              | '41              | '70              |
|                                               | '09                                                               | '06              | '40              | '70              | '08              | '10              | '40              | '70              |
|                                               | '10                                                               | '02              | '40              | '71              | '16              | '01              | '41              | '70              |
|                                               | '14                                                               | '10              | '39              | '70              | '10              | '00              | '40              | '68              |
|                                               | '08                                                               | '05              | '40              | '70              | '10              | '01              | '40              | '70              |
|                                               | '06                                                               | '12              | '40              | '70              | '03              | '01              | '40              | '69              |
|                                               | '10                                                               | '10              | '40              | '70              | '10              | '02              | '40              | '70              |
|                                               | '07                                                               | '07              | '40              | '70              | '10              | '02              | '39              | '65              |
|                                               | '09                                                               | '04              | '40              | '70              | '10              | '02              | '40              | '69              |
|                                               | '02                                                               | '08              | '40              | '70              | '12              | '02              | '40              | '68              |
|                                               | '08                                                               | '10              | '40              | '72              | '14              | '02              | '40              | '69              |
|                                               | '08                                                               | '09              | '40              | '70              | '08              | '02              | '40              | '69              |
|                                               | '10                                                               | '11              | '40              | '70              | '11              | '00              | '40              | '70              |
|                                               | '08                                                               | '10              | '40              | '69              | '03              | '02              | '40              | '70              |
|                                               | '09                                                               | '03              | '40              | '70              | ...              | '03              | '40              | '70              |
|                                               | '02                                                               | '12              | '40              | '70              | '13              | '01              | '40              | '69              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 1 41                                        | h m s<br>5 5 10  | h m s<br>5 3 40  | h m s<br>5 6 36  | h m s<br>5 54 31 | h m s<br>5 58 10 | h m s<br>5 56 46 | h m s<br>5 59 10 |
|                                               | W Clock<br>h m s<br>4 43 48                                       | h m s<br>4 47 20 | h m s<br>4 45 47 | h m s<br>4 48 47 | h m s<br>5 36 38 | h m s<br>5 40 20 | h m s<br>5 38 53 | h m s<br>5 41 21 |
|                                               | s<br>+0'083                                                       | s<br>+0'067      | s<br>+0'399      | s<br>+0'701      | s<br>+0'100      | s<br>+0'042      | s<br>+0'401      | s<br>+0'692      |
| Difference                                    | m s<br>17 52'917                                                  | m s<br>17 49'933 | m s<br>17 53'399 | m s<br>17 49'701 | m s<br>17 52'900 | m s<br>17 49'958 | m s<br>17 53'401 | m s<br>17 49'692 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                                 |                                 |                                 |                                 |                                 |                                 |                                 |
|-----------------------------------------------|-------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
|                                               | At W                                                              |                                 | At E                            |                                 | At W                            |                                 | At E                            |                                 |
|                                               | Q -                                                               | Q +                             | Q +                             | Q -                             | Q -                             | Q +                             | Q +                             | Q -                             |
| 1883<br>December 26                           | s<br>0'40                                                         | s<br>0'40                       | s<br>0'01                       | s<br>0'28                       | s<br>0'79                       | s<br>0'77                       | s<br>0'70                       | s<br>0'96                       |
|                                               | '40                                                               | '40                             | '02                             | '29                             | '72                             | '79                             | '71                             | '98                             |
|                                               | '42                                                               | '40                             | '02                             | '29                             | '78                             | '80                             | '71                             | '96                             |
|                                               | '41                                                               | '41                             | '01                             | '28                             | '72                             | '80                             | '70                             | '98                             |
|                                               | '40                                                               | '40                             | '02                             | '27                             | '78                             | '78                             | '72                             | '95                             |
|                                               | '41                                                               | '40                             | '01                             | '28                             | '73                             | '79                             | '71                             | '96                             |
|                                               | '41                                                               | '40                             | '03                             | '28                             | '77                             | '79                             | '71                             | '98                             |
|                                               | '41                                                               | '40                             | '01                             | '28                             | '80                             | '77                             | '71                             | '98                             |
|                                               | '41                                                               | '41                             | '02                             | '28                             | '79                             | '74                             | '71                             | '97                             |
|                                               | '40                                                               | '41                             | '01                             | '29                             | '78                             | '74                             | '71                             | '99                             |
|                                               | '43                                                               | '42                             | '02                             | '28                             | '78                             | '73                             | '72                             | '98                             |
|                                               | '41                                                               | '43                             | '01                             | '28                             | '78                             | '72                             | '70                             | '97                             |
|                                               | '41                                                               | '42                             | '01                             | '28                             | '78                             | '72                             | '70                             | '98                             |
|                                               | '42                                                               | '41                             | '00                             | '29                             | '78                             | '73                             | '70                             | '97                             |
|                                               | '41                                                               | '40                             | '01                             | '28                             | '79                             | '73                             | '70                             | '96                             |
|                                               | '40                                                               | '40                             | '00                             | '27                             | '77                             | '74                             | '71                             | '97                             |
|                                               | '41                                                               | '40                             | '00                             | '26                             | '79                             | '74                             | '70                             | '96                             |
|                                               | '40                                                               | '41                             | '00                             | '26                             | '78                             | '75                             | '70                             | '98                             |
|                                               | '41                                                               | '42                             | '00                             | '27                             | '79                             | '75                             | '70                             | '99                             |
|                                               | '41                                                               | '43                             | '00                             | '25                             | '78                             | '76                             | '70                             | '99                             |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 36 22                                       | h m s<br>5 39 10                | h m s<br>5 38 11<br>s<br>+0'011 | h m s<br>5 41 10<br>s<br>+0'277 | h m s<br>6 21 30                | h m s<br>6 24 43                | h m s<br>6 23 10<br>s<br>+0'706 | h m s<br>6 25 42<br>s<br>+0'973 |
|                                               | W Clock<br>h m s<br>5 32 22<br>s<br>+0'409                        | h m s<br>5 35 13<br>s<br>+0'409 | h m s<br>5 34 11                | h m s<br>5 37 14                | h m s<br>6 17 30<br>s<br>+0'774 | h m s<br>6 20 46<br>s<br>+0'757 | h m s<br>6 19 11                | h m s<br>6 21 47                |
| Difference                                    | m s<br>3 59'59                                                    | m s<br>3 56'59                  | m s<br>4 0'011                  | m s<br>3 56'277                 | m s<br>3 59'226                 | m s<br>3 56'243                 | m s<br>3 59'706                 | m s<br>3 55'973                 |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1883<br>December 27                           | s<br>0'90                                                         | s<br>0'81        | s<br>0'60        | s<br>0'85        | s<br>0'14        | s<br>0'18        | s<br>0'30        | s<br>0'52        |
|                                               | '84                                                               | '83              | '60              | '84              | '13              | '19              | '30              | '51              |
|                                               | '88                                                               | '83              | '60              | '83              | '15              | '19              | '30              | '52              |
|                                               | '88                                                               | '87              | '60              | '84              | '14              | '19              | '29              | '51              |
|                                               | '90                                                               | '88              | '60              | '83              | '13              | '20              | '30              | '51              |
|                                               | '89                                                               | '89              | '60              | '82              | '13              | '19              | '30              | '51              |
|                                               | '88                                                               | '89              | '60              | '82              | '13              | '18              | '29              | '51              |
|                                               | '89                                                               | '86              | '60              | '83              | '14              | '18              | '29              | '52              |
|                                               | '88                                                               | '83              | '60              | '83              | '13              | '17              | '29              | '51              |
|                                               | '90                                                               | '84              | '60              | '82              | '14              | '18              | '29              | '50              |
|                                               | '90                                                               | '83              | '60              | '82              | '14              | '18              | '29              | '50              |
|                                               | '90                                                               | '88              | '60              | '81              | '15              | '19              | '28              | '50              |
|                                               | '89                                                               | '85              | '59              | '83              | '14              | '18              | '29              | '51              |
|                                               | '89                                                               | '89              | '58              | '81              | '14              | '19              | '28              | '50              |
|                                               | '89                                                               | '87              | '59              | '82              | '15              | '12              | '30              | '51              |
|                                               | '90                                                               | '86              | '60              | '81              | '18              | '19              | '29              | '50              |
|                                               | '89                                                               | '87              | '60              | '81              | '15              | '19              | '30              | '50              |
|                                               | '89                                                               | '86              | '60              | '81              | '18              | '19              | '29              | '50              |
|                                               | '89                                                               | '88              | '60              | '84              | '15              | '18              | '30              | '51              |
|                                               | '88                                                               | '90              | '60              | '82              | '16              | '17              | '29              | '50              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 36 13                                       | h m s<br>5 39 11 | h m s<br>5 38 10 | h m s<br>5 41 10 | h m s<br>6 21 11 | h m s<br>6 24 33 | h m s<br>6 23 10 | h m s<br>6 26 10 |
|                                               |                                                                   |                  | s<br>+0'598      | s<br>+0'825      |                  |                  | s<br>+0'293      | s<br>+0'508      |
|                                               | W Clock<br>h m s<br>5 32 22                                       | h m s<br>5 35 23 | h m s<br>5 34 20 | h m s<br>5 37 24 | h m s<br>6 17 21 | h m s<br>6 20 46 | h m s<br>6 19 20 | h m s<br>6 22 24 |
|                                               | s<br>+0'888                                                       | s<br>+0'861      |                  |                  | s<br>+0'145      | s<br>+0'182      |                  |                  |
| Difference                                    | m s<br>3 50'112                                                   | m s<br>3 47'139  | m s<br>3 50'598  | m s<br>3 46'825  | m s<br>3 49'855  | m s<br>3 46'818  | m s<br>3 50'293  | m s<br>3 46'508  |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1893<br>December 28                           | s<br>0.56                                                         | s<br>0.50        | s<br>0.91        | s<br>0.19        | s<br>0.90        | s<br>0.80        | s<br>0.60        | s<br>0.80        |
|                                               | .54                                                               | .50              | .91              | .17              | .90              | .88              | .60              | .80              |
|                                               | .55                                                               | .50              | .90              | .16              | .90              | .85              | .60              | .80              |
|                                               | .54                                                               | .50              | .90              | .18              | .90              | .83              | .60              | .80              |
|                                               | .52                                                               | .50              | .91              | .18              | .90              | .85              | .60              | .81              |
|                                               | .53                                                               | .50              | .90              | .19              | .90              | .83              | .60              | .81              |
|                                               | .52                                                               | .49              | .91              | .16              | .89              | .82              | .59              | .82              |
|                                               | .55                                                               | .50              | .91              | .18              | .89              | .81              | .59              | .81              |
|                                               | .53                                                               | .50              | .92              | .17              | .89              | .82              | .60              | .81              |
|                                               | .53                                                               | .50              | .90              | .18              | .90              | .80              | .60              | .81              |
|                                               | .55                                                               | .50              | .91              | .17              | .90              | .80              | .60              | .80              |
|                                               | .55                                                               | .50              | .92              | .18              | .89              | .81              | .59              | .81              |
|                                               | .54                                                               | .50              | .92              | .15              | .89              | .81              | .60              | .80              |
|                                               | .55                                                               | .50              | .91              | .16              | .88              | .81              | .59              | .80              |
|                                               | .55                                                               | .52              | .93              | .17              | .88              | .81              | .60              | .81              |
|                                               | .54                                                               | .50              | .93              | .16              | .89              | .82              | .60              | .80              |
|                                               | .54                                                               | .50              | .93              | .15              | .88              | .82              | .60              | .80              |
|                                               | .53                                                               | .50              | .91              | .15              | .88              | .82              | .59              | .80              |
|                                               | .59                                                               | .50              | .91              | .15              | .89              | .81              | .60              | .81              |
|                                               | .57                                                               | .50              | .90              | .16              | .89              | .81              | .60              | .81              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 36 10                                       | h m s<br>5 39 48 | h m s<br>5 38 20 | h m s<br>5 40 47 | h m s<br>6 21 23 | h m s<br>6 24 10 | h m s<br>6 23 10 | h m s<br>6 26 10 |
|                                               |                                                                   |                  | s<br>+0.912      | s<br>+0.168      |                  |                  | s<br>+0.598      | s<br>+0.806      |
|                                               | W Clock<br>h m s<br>5 32 29                                       | h m s<br>5 36 10 | h m s<br>5 34 40 | h m s<br>5 37 10 | h m s<br>6 17 42 | h m s<br>6 20 32 | h m s<br>6 19 30 | h m s<br>6 22 34 |
|                                               | s<br>+0.544                                                       | s<br>+0.501      |                  |                  | s<br>+0.892      | s<br>+0.820      |                  |                  |
| Difference                                    | m s<br>3 40.456                                                   | m s<br>3 37.499  | m s<br>3 40.912  | m s<br>3 37.168  | m s<br>3 40.108  | m s<br>3 37.180  | m s<br>3 40.598  | m s<br>3 36.806  |



TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1883<br>December 29                           | s<br>0'30                                                         | s<br>0'29        | s<br>0'20        | s<br>0'40        | s<br>0'61        | s<br>0'52        | s<br>0'90        | s<br>0'10        |
|                                               | '30                                                               | '27              | '20              | '40              | '61              | '52              | '89              | '08              |
|                                               | '30                                                               | '22              | '19              | '40              | '61              | '52              | '89              | '10              |
|                                               | '30                                                               | '22              | '20              | '41              | '61              | '52              | '88              | '10              |
|                                               | '31                                                               | '26              | '20              | '40              | '61              | '52              | '89              | '09              |
|                                               | '31                                                               | '22              | '20              | '42              | '62              | '52              | '89              | '10              |
|                                               | '31                                                               | '22              | '20              | '40              | '62              | '52              | '87              | '10              |
|                                               | '30                                                               | '22              | '21              | '41              | '62              | '53              | '87              | '10              |
|                                               | '30                                                               | '23              | '20              | '40              | '61              | '56              | '88              | '09              |
|                                               | '30                                                               | '28              | '20              | '40              | '61              | '56              | '87              | '10              |
|                                               | '30                                                               | '27              | '20              | '40              | '60              | '58              | '88              | '10              |
|                                               | '30                                                               | '25              | '21              | '40              | '62              | '59              | '86              | '10              |
|                                               | '30                                                               | '22              | '20              | '40              | '60              | '59              | '86              | '09              |
|                                               | '30                                                               | '21              | '20              | '40              | '65              | '58              | '88              | '08              |
|                                               | '30                                                               | '22              | '19              | '41              | '63              | '58              | '89              | '08              |
|                                               | '30                                                               | '22              | '20              | '41              | '62              | '58              | '86              | '09              |
|                                               | '30                                                               | '22              | '20              | '40              | '62              | '58              | '89              | '09              |
|                                               | '29                                                               | '23              | '20              | '40              | '62              | '58              | '89              | '08              |
|                                               | '30                                                               | '20              | '20              | '40              | '60              | '52              | '87              | '08              |
|                                               | '31                                                               | '20              | '20              | '40              | '60              | '56              | '88              | '08              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 37 10                                       | h m s<br>5 40 10 | h m s<br>5 39 10 | h m s<br>5 41 37 | h m s<br>6 21 10 | h m s<br>6 23 38 | h m s<br>6 22 40 | h m s<br>6 25 37 |
|                                               |                                                                   |                  | s<br>+0'200      | s<br>+0'403      |                  |                  | s<br>+0'875      | s<br>+0'092      |
|                                               | W Clock<br>h m s<br>5 33 39                                       | h m s<br>5 36 42 | h m s<br>5 35 39 | h m s<br>5 38 10 | h m s<br>6 17 39 | h m s<br>6 20 10 | h m s<br>6 19 10 | h m s<br>6 22 10 |
|                                               | s<br>+0'302                                                       | s<br>+0'234      |                  |                  | s<br>+0'615      | s<br>+0'552      |                  |                  |
| Difference                                    | m s<br>3 30'698                                                   | m s<br>3 27'766  | m s<br>3 31'200  | m s<br>3 27'403  | m s<br>3 30'385  | m s<br>3 27'448  | m s<br>3 30'875  | m s<br>3 27'092  |

TABLE III. DIRECT COMPARISON OF CLOCKS.

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*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1883<br>December 30                           | s<br>0'94                                                         | s<br>0'89        | s<br>0'51        | s<br>0'75        | s<br>0'22        | s<br>0'20        | s<br>0'22        | s<br>0'42        |
|                                               | '93                                                               | '90              | '52              | '74              | '21              | '20              | '23              | '41              |
|                                               | '92                                                               | '89              | '52              | '74              | '21              | '20              | '25              | '40              |
|                                               | '92                                                               | '89              | '51              | '72              | '21              | '20              | '23              | '42              |
|                                               | '92                                                               | '89              | '52              | '74              | '22              | '20              | '20              | '40              |
|                                               | '93                                                               | '90              | '53              | '74              | '22              | '20              | '20              | '41              |
|                                               | '92                                                               | '90              | '51              | '71              | '23              | '20              | '20              | '41              |
|                                               | '93                                                               | '90              | '54              | '75              | '25              | '20              | '20              | '41              |
|                                               | '96                                                               | '90              | '55              | '73              | '25              | '20              | '20              | '41              |
|                                               | '97                                                               | '89              | '55              | '75              | '23              | '21              | '20              | '42              |
|                                               | '94                                                               | '89              | '53              | '72              | '23              | '21              | '20              | '41              |
|                                               | '96                                                               | '89              | '54              | '76              | '22              | '22              | '20              | '41              |
|                                               | '96                                                               | '89              | '54              | '75              | '23              | '21              | '20              | '41              |
|                                               | '95                                                               | '90              | '54              | '73              | '23              | '21              | '20              | '41              |
|                                               | '95                                                               | '90              | '53              | '71              | '23              | '20              | '20              | '42              |
|                                               | '95                                                               | '90              | '55              | '71              | '23              | '20              | '20              | '41              |
|                                               | '95                                                               | '90              | '55              | '71              | '23              | '20              | '20              | '41              |
|                                               | '95                                                               | '90              | '52              | '74              | '23              | '20              | '20              | '42              |
|                                               | '95                                                               | '90              | '55              | '75              | '23              | '20              | '20              | '40              |
|                                               | '95                                                               | '90              | '57              | '74              | '24              | '20              | '21              | '41              |
| Corresponding<br>Mean<br>Observed<br>Times by | h m s<br>5 37 32                                                  | h m s<br>5 40 29 | h m s<br>5 39 10 | h m s<br>5 41 46 | h m s<br>6 23 31 | h m s<br>6 26 43 | h m s<br>6 25 10 | h m s<br>6 27 48 |
|                                               | s<br>+0'943                                                       | s<br>+0'896      | s<br>+0'534      | s<br>+0'735      | s<br>+0'228      | s<br>+0'203      | s<br>+0'207      | s<br>+0'411      |
|                                               | h m s<br>5 34 10                                                  | h m s<br>5 37 10 | h m s<br>5 35 49 | h m s<br>5 38 29 | h m s<br>6 20 10 | h m s<br>6 23 25 | h m s<br>6 21 49 | h m s<br>6 24 31 |
|                                               | s<br>+0'943                                                       | s<br>+0'896      | s<br>+0'534      | s<br>+0'735      | s<br>+0'228      | s<br>+0'203      | s<br>+0'207      | s<br>+0'411      |
| Difference                                    | m s<br>3 21'057                                                   | m s<br>3 18'104  | m s<br>3 21'534  | m s<br>3 17'735  | m s<br>3 20'772  | m s<br>3 17'797  | m s<br>3 21'207  | m s<br>3 17'411  |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, Q |                  |                  |                  |                  |                  |                  |                  |
|-----------------------------------------------|-------------------------------------------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                               | At W                                                              |                  | At E             |                  | At W             |                  | At E             |                  |
|                                               | Q -                                                               | Q +              | Q +              | Q -              | Q -              | Q +              | Q +              | Q -              |
| 1884<br>January 2                             | s<br>0'13                                                         | s<br>0'12        | s<br>0'31        | s<br>0'50        | s<br>0'43        | s<br>0'44        | s<br>0'99        | s<br>0'20        |
|                                               | '12                                                               | '13              | '30              | '50              | '43              | '48              | 1'00             | '20              |
|                                               | '13                                                               | '11              | '30              | '50              | '46              | '48              | 1'00             | '20              |
|                                               | '12                                                               | '11              | '31              | '50              | '45              | '49              | 0'99             | '20              |
|                                               | '13                                                               | '12              | '31              | '51              | '44              | '49              | 1'00             | '20              |
|                                               | '12                                                               | '12              | '30              | '51              | '45              | '48              | 1'00             | '20              |
|                                               | '13                                                               | '13              | '30              | '51              | '45              | '43              | 1'00             | '20              |
|                                               | '13                                                               | '12              | '30              | '51              | '46              | '45              | 0'99             | '20              |
|                                               | '12                                                               | '11              | '30              | '51              | '46              | '44              | '99              | '20              |
|                                               | '13                                                               | '12              | '30              | '51              | '45              | '48              | 1'00             | '20              |
|                                               | '13                                                               | '12              | '30              | '52              | '48              | '48              | 1'00             | '20              |
|                                               | '12                                                               | '12              | '30              | '51              | '49              | '48              | 1'00             | '20              |
|                                               | '12                                                               | '12              | '30              | '51              | '49              | '48              | 1'00             | '20              |
|                                               | '12                                                               | '12              | '30              | '51              | '49              | '46              | 1'00             | '21              |
|                                               | '13                                                               | '12              | '31              | '53              | '50              | '48              | 1'00             | '20              |
|                                               | '13                                                               | '11              | '30              | '52              | '50              | '48              | 1'00             | '20              |
|                                               | '16                                                               | '11              | '30              | '52              | '50              | '46              | 1'00             | '20              |
|                                               | '14                                                               | '10              | '30              | '51              | '48              | '48              | 1'00             | '20              |
|                                               | '13                                                               | '10              | '30              | '52              | '47              | '49              | 1'00             | '20              |
|                                               | '13                                                               | '11              | '32              | '51              | '47              | '49              | 1'00             | '20              |
| Corresponding<br>Mean<br>Observed<br>Times by | E Clock<br>h m s<br>5 36 11                                       | h m s<br>5 39 10 | h m s<br>5 38 10 | h m s<br>5 40 33 | h m s<br>6 21 11 | h m s<br>6 24 10 | h m s<br>6 22 36 | h m s<br>6 25 34 |
|                                               |                                                                   |                  | s<br>+0'303      | s<br>+0'511      |                  |                  | s<br>+0'998      | s<br>+0'200      |
|                                               | W Clock<br>h m s<br>5 33 20                                       | h m s<br>5 36 22 | h m s<br>5 35 19 | h m s<br>5 37 46 | h m s<br>6 18 20 | h m s<br>6 21 22 | h m s<br>6 19 46 | h m s<br>6 22 47 |
|                                               | s<br>+0'129                                                       | s<br>+0'116      |                  |                  | s<br>+0'468      | s<br>+0'472      |                  |                  |
| Difference                                    | m s<br>2 50'871                                                   | m s<br>2 47'884  | m s<br>2 51'303  | m s<br>2 47'511  | m s<br>2 50'532  | m s<br>2 47'528  | m s<br>2 50'998  | m s<br>2 47'200  |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date                             | Station at which Comparison was made, and Sign of Pen Equation, $Q$ |                                               |                                               |                                               |                                               |                                               |                                               |                                               |
|-----------------------------------------------|---------------------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|-----------------------------------------------|
|                                               | At W                                                                |                                               | At E                                          |                                               | At W                                          |                                               | At E                                          |                                               |
|                                               | $Q -$                                                               | $Q +$                                         | $Q +$                                         | $Q -$                                         | $Q -$                                         | $Q +$                                         | $Q +$                                         | $Q -$                                         |
| 1884<br>January 3                             | <i>s</i><br>0'19                                                    | <i>s</i><br>0'13                              | <i>s</i><br>0'32                              | <i>s</i><br>0'50                              | <i>s</i><br>0'49                              | <i>s</i><br>0'42                              | <i>s</i><br>0'00                              | <i>s</i><br>0'20                              |
|                                               | '18                                                                 | '11                                           | '33                                           | '51                                           | '50                                           | '42                                           | '01                                           | '20                                           |
|                                               | '18                                                                 | '15                                           | '31                                           | '50                                           | '50                                           | '43                                           | '00                                           | '20                                           |
|                                               | '17                                                                 | '15                                           | '32                                           | '50                                           | '49                                           | '44                                           | '02                                           | '20                                           |
|                                               | '15                                                                 | '18                                           | '32                                           | '50                                           | '49                                           | '42                                           | '01                                           | '20                                           |
|                                               | '15                                                                 | '11                                           | '31                                           | '50                                           | '49                                           | '44                                           | '00                                           | '20                                           |
|                                               | '14                                                                 | '11                                           | '32                                           | '50                                           | '49                                           | '43                                           | '00                                           | '19                                           |
|                                               | '18                                                                 | '10                                           | '32                                           | '50                                           | '50                                           | '43                                           | '00                                           | '20                                           |
|                                               | '15                                                                 | '12                                           | '35                                           | '50                                           | '48                                           | '46                                           | '01                                           | '19                                           |
|                                               | '13                                                                 | '11                                           | '36                                           | '50                                           | '49                                           | '44                                           | '02                                           | '19                                           |
|                                               | '12                                                                 | '13                                           | '32                                           | '50                                           | '48                                           | '42                                           | '01                                           | '19                                           |
|                                               | '16                                                                 | '13                                           | '35                                           | '50                                           | '49                                           | '45                                           | '00                                           | '19                                           |
|                                               | '12                                                                 | '13                                           | '33                                           | '50                                           | '48                                           | '43                                           | '00                                           | '19                                           |
|                                               | '16                                                                 | '12                                           | '34                                           | '50                                           | '48                                           | '45                                           | '01                                           | '19                                           |
|                                               | '15                                                                 | '12                                           | '31                                           | '50                                           | '47                                           | '44                                           | '01                                           | '19                                           |
|                                               | '17                                                                 | '12                                           | '33                                           | '51                                           | '49                                           | '45                                           | '01                                           | '20                                           |
|                                               | '16                                                                 | '13                                           | '32                                           | '50                                           | '48                                           | '44                                           | '00                                           | '19                                           |
|                                               | '16                                                                 | '12                                           | '31                                           | '50                                           | '49                                           | '45                                           | '00                                           | '18                                           |
|                                               | '18                                                                 | '13                                           | '32                                           | '50                                           | '48                                           | '48                                           | '01                                           | '19                                           |
|                                               | '18                                                                 | '11                                           | '35                                           | '51                                           | '49                                           | '48                                           | '00                                           | '20                                           |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>5 36 10                                             | <i>h m s</i><br>5 39 10                       | <i>h m s</i><br>5 37 28<br><i>s</i><br>+0'327 | <i>h m s</i><br>5 40 24<br><i>s</i><br>+0'502 | <i>h m s</i><br>6 21 10                       | <i>h m s</i><br>6 23 48                       | <i>h m s</i><br>6 22 28<br><i>s</i><br>+0'006 | <i>h m s</i><br>6 25 47<br><i>s</i><br>+0'194 |
|                                               | <i>h m s</i><br>5 33 29<br><i>s</i><br>+0'159                       | <i>h m s</i><br>5 36 32<br><i>s</i><br>+0'126 | <i>h m s</i><br>5 34 47                       | <i>h m s</i><br>5 37 47                       | <i>h m s</i><br>6 18 29<br><i>s</i><br>+0'488 | <i>h m s</i><br>6 21 10<br><i>s</i><br>+0'441 | <i>h m s</i><br>6 19 47                       | <i>h m s</i><br>6 23 10                       |
| Difference                                    | <i>m s</i><br>2 40'841                                              | <i>m s</i><br>2 37'874                        | <i>m s</i><br>2 41'327                        | <i>m s</i><br>2 37'502                        | <i>m s</i><br>2 40'512                        | <i>m s</i><br>2 37'559                        | <i>m s</i><br>2 41'006                        | <i>m s</i><br>2 37'194                        |

TABLE III. DIRECT COMPARISON OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical<br>Date                          | Station at which Comparison was made, and Sign of Pen Equation, $Q$ |                         |                         |                         |                         |                         |                         |                         |
|-----------------------------------------------|---------------------------------------------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                               | At W                                                                |                         | At E                    |                         | At W                    |                         | At E                    |                         |
|                                               | $Q -$                                                               | $Q +$                   | $Q +$                   | $Q -$                   | $Q -$                   | $Q +$                   | $Q +$                   | $Q -$                   |
| 1884<br>January 4                             | <i>s</i><br>1'00                                                    | <i>s</i><br>1'00        | <i>s</i><br>0'50        | <i>s</i><br>0'67        | <i>s</i><br>0'32        | <i>s</i><br>0'31        | <i>s</i><br>0'18        | <i>s</i><br>0'30        |
|                                               | 1'00                                                                | 1'00                    | '50                     | '69                     | '32                     | '32                     | '12                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '68                     | '32                     | '32                     | '12                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '49                     | '68                     | '32                     | '30                     | '12                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '49                     | '69                     | '32                     | '31                     | '11                     | '30                     |
|                                               | 0'99                                                                | 1'00                    | '50                     | '68                     | '32                     | '30                     | '10                     | '31                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '67                     | '32                     | '30                     | '10                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '49                     | '69                     | '31                     | '31                     | '17                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '48                     | '68                     | '32                     | '30                     | '11                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '67                     | '32                     | '32                     | '10                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '65                     | '32                     | '33                     | '10                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '67                     | '32                     | '33                     | '11                     | '31                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '66                     | '32                     | '34                     | '11                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '67                     | '32                     | '34                     | '11                     | '31                     |
|                                               | 1'00                                                                | 0'99                    | '48                     | '65                     | '33                     | '32                     | '11                     | '31                     |
|                                               | 1'00                                                                | 1'00                    | '49                     | '66                     | '32                     | '31                     | '11                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '64                     | '32                     | '31                     | '10                     | '30                     |
|                                               | 1'00                                                                | 1'00                    | '50                     | '65                     | '32                     | '31                     | '10                     | '31                     |
|                                               | 1'00                                                                | 0'99                    | '48                     | '65                     | '32                     | '32                     | ...                     | '31                     |
|                                               | 1'00                                                                | 1'00                    | '47                     | '63                     | '32                     | '33                     | ...                     | '30                     |
| Corresponding<br>Mean<br>Observed<br>Times by | <i>h m s</i><br>5 36 10                                             | <i>h m s</i><br>5 39 11 | <i>h m s</i><br>5 37 41 | <i>h m s</i><br>5 40 37 | <i>h m s</i><br>6 21 17 | <i>h m s</i><br>6 23 38 | <i>h m s</i><br>6 23 1  | <i>h m s</i><br>6 25 10 |
|                                               | <i>s</i><br>+1'000                                                  | <i>s</i><br>+0'999      | <i>s</i><br>+0'494      | <i>s</i><br>+0'667      | <i>s</i><br>+0'320      | <i>s</i><br>+0'317      | <i>s</i><br>+0'116      | <i>s</i><br>+0'303      |
|                                               | <i>h m s</i><br>5 33 38                                             | <i>h m s</i><br>5 36 42 | <i>h m s</i><br>5 35 10 | <i>h m s</i><br>5 38 10 | <i>h m s</i><br>6 18 46 | <i>h m s</i><br>6 21 10 | <i>h m s</i><br>6 20 30 | <i>h m s</i><br>6 22 43 |
|                                               | <i>s</i><br>+1'000                                                  | <i>s</i><br>+0'999      |                         |                         | <i>s</i><br>+0'320      | <i>s</i><br>+0'317      |                         |                         |
| Difference                                    | <i>m s</i><br>2 31'000                                              | <i>m s</i><br>2 28'001  | <i>m s</i><br>2 31'494  | <i>m s</i><br>2 27'667  | <i>m s</i><br>2 30'680  | <i>m s</i><br>2 27'683  | <i>m s</i><br>2 31'116  | <i>m s</i><br>2 27'303  |

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date   | Observed Hour at E,<br>Mean = $t_E$ |     |     | Observed Clock Difference d and Mean | Signals transmitted, from | Relative Hourly Clock Rate Correction at given Epochs by E Clock |                           | Reduction of d to $t_E$ by Relative Rate Correction R |        | Pen Equation, Q,<br>at E, $Q = -\frac{\beta + \delta}{2}$<br>at W, $Q = -\frac{\alpha - \gamma}{2}$ | Retardation<br>=<br>$\frac{\beta + \delta}{4}$<br>minus<br>$\frac{\alpha + \gamma}{4}$ | Deduced Clock Differences D at Epochs by E Clock $T_E$ |
|---------------------|-------------------------------------|-----|-----|--------------------------------------|---------------------------|------------------------------------------------------------------|---------------------------|-------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------|
|                     |                                     |     |     |                                      |                           | Deduced R                                                        | Interpolated $R_1$        | Reduced Clock Difference $d_1$                        |        |                                                                                                     |                                                                                        |                                                        |
| 1883<br>November 27 | $h$                                 | $m$ | $s$ | $m$                                  | $s$                       |                                                                  |                           | $m$                                                   | $s$    |                                                                                                     |                                                                                        |                                                        |
|                     | 4                                   | 6   | 49  | 18                                   | 0.128                     | E                                                                |                           | 18                                                    | 0.128  | $\alpha$                                                                                            |                                                                                        | $D = 17^m 58^s.767$                                    |
|                     |                                     | 9   | 44  | 17                                   | 57.276                    | E                                                                |                           | 17                                                    | 57.276 | $\gamma$                                                                                            |                                                                                        |                                                        |
|                     |                                     | 10  | 57  |                                      | 57.007                    | W                                                                |                           |                                                       | 57.007 | $\delta$                                                                                            |                                                                                        | $T_E = 4^h 23^m 15^s$                                  |
|                     |                                     | 16  | 49  | 18                                   | 0.660                     | W                                                                |                           | 18                                                    | 0.660  | $\beta$                                                                                             |                                                                                        |                                                        |
|                     | 4                                   | 11  | 5   | 17                                   | 58.768                    |                                                                  | $-\frac{0.003}{4^h 41^m}$ |                                                       |        |                                                                                                     | 0.066                                                                                  |                                                        |
| "                   | 5                                   | 9   | 47  | 18                                   | 0.113                     | E                                                                |                           | 18                                                    | 0.113  | $\alpha$                                                                                            |                                                                                        | $D = 17^m 58^s.767$                                    |
|                     |                                     | 11  | 11  |                                      | 0.670                     | W                                                                |                           |                                                       | 0.670  | $\beta$                                                                                             |                                                                                        |                                                        |
|                     |                                     | 12  | 44  | 17                                   | 57.265                    | E                                                                |                           | 17                                                    | 57.265 | $\gamma$                                                                                            | 0.076                                                                                  | $T_E = 4^h 41^m 41^s$                                  |
|                     |                                     | 13  | 48  |                                      | 57.013                    | W                                                                |                           |                                                       | 57.013 | $\delta$                                                                                            |                                                                                        |                                                        |
|                     | 5                                   | 11  | 53  | 17                                   | 58.765                    |                                                                  |                           |                                                       |        |                                                                                                     |                                                                                        |                                                        |
| December 8          | 5                                   | 1   | 41  | 17                                   | 53.219                    | E                                                                |                           | 17                                                    | 53.216 | $\alpha$                                                                                            |                                                                                        | $D = 17^m 51^s.738$                                    |
|                     |                                     | 5   | 11  |                                      | 50.171                    | E                                                                |                           |                                                       | 50.171 | $\gamma$                                                                                            |                                                                                        |                                                        |
|                     |                                     | 5   | 49  | 53                                   | 606                       | W                                                                |                           | 53                                                    | 607    | $\beta$                                                                                             | 0.055                                                                                  | $T_E = 5^h 15^m 51^s$                                  |
|                     |                                     | 6   | 38  | 49                                   | 997                       | W                                                                |                           | 49                                                    | 998    | $\delta$                                                                                            |                                                                                        |                                                        |
|                     | 5                                   | 4   | 50  | 17                                   | 51.748                    |                                                                  | $-\frac{0.054}{5^h 31^m}$ |                                                       |        |                                                                                                     |                                                                                        |                                                        |
| "                   | 5                                   | 54  | 10  | 17                                   | 53.192                    | E                                                                |                           | 17                                                    | 53.190 | $\alpha$                                                                                            |                                                                                        | $D = 17^m 51^s.726$                                    |
|                     |                                     | 55  | 42  | 53                                   | 591                       | W                                                                |                           | 53                                                    | 590    | $\beta$                                                                                             | 0.052                                                                                  |                                                        |
|                     |                                     | 56  | 45  | 50                                   | 110                       | E                                                                |                           | 50                                                    | 110    | $\gamma$                                                                                            |                                                                                        | $T_E = 5^h 29^m 31^s$                                  |
|                     |                                     | 58  | 37  | 49                                   | 914                       | W                                                                |                           | 49                                                    | 916    | $\delta$                                                                                            |                                                                                        |                                                        |
|                     | 5                                   | 56  | 19  | 17                                   | 51.702                    |                                                                  |                           |                                                       |        |                                                                                                     |                                                                                        |                                                        |
| December 9          | 5                                   | 1   | 41  | 17                                   | 52.384                    | E                                                                |                           | 17                                                    | 52.382 | $\alpha$                                                                                            |                                                                                        | $D = 17^m 50^s.877$                                    |
|                     |                                     | 3   | 40  | 52                                   | 758                       | W                                                                |                           | 52                                                    | 758    | $\beta$                                                                                             | 0.045                                                                                  |                                                        |
|                     |                                     | 4   | 42  | 49                                   | 300                       | E                                                                |                           | 49                                                    | 300    | $\gamma$                                                                                            |                                                                                        | $T_E = 5^h 15^m 51^s$                                  |
|                     |                                     | 6   | 10  | 49                                   | 100                       | W                                                                |                           | 49                                                    | 102    | $\delta$                                                                                            |                                                                                        |                                                        |
|                     | 5                                   | 4   | 3   | 17                                   | 50.886                    |                                                                  | $-\frac{0.046}{5^h 31^m}$ |                                                       |        |                                                                                                     |                                                                                        |                                                        |
| "                   | 5                                   | 56  | 40  | 17                                   | 52.313                    | E                                                                |                           | 17                                                    | 52.312 | $\alpha$                                                                                            |                                                                                        | $D = 17^m 50^s.866$                                    |
|                     |                                     | 57  | 42  | 52                                   | 719                       | W                                                                |                           | 52                                                    | 718    | $\beta$                                                                                             | 0.059                                                                                  |                                                        |
|                     |                                     | 59  | 10  | 49                                   | 257                       | E                                                                |                           | 49                                                    | 258    | $\gamma$                                                                                            |                                                                                        | $T_E = 5^h 29^m 31^s$                                  |
|                     |                                     | 6   | 0   | 49                                   | 086                       | W                                                                |                           | 49                                                    | 087    | $\delta$                                                                                            |                                                                                        |                                                        |
|                     | 5                                   | 58  | 26  | 17                                   | 50.844                    |                                                                  |                           |                                                       |        |                                                                                                     |                                                                                        |                                                        |

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date   | Observed Hour at E, Mean = $t_E$                                                          | Observed Clock Difference d and Mean                                                                                             | Signals transmitted, from            | Relative Hourly Clock Rate Correction at given Epochs by E Clock |                    | Reduction of d to $t_E$ by Relative Rate Correction R          |                                             | Pen Equation, Q,<br>at E, $Q = \frac{-\beta + \delta}{2}$<br>at W, $Q = \frac{\alpha - \gamma}{2}$ | Retardation<br>=<br>$\frac{\beta + \delta}{4}$<br>minus<br>$\frac{\alpha + \gamma}{4}$     | Deduced Clock Differences D<br>at Epochs by E Clock<br>$T_E$                     |                |                                                                                      |
|---------------------|-------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------|--------------------|----------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------|
|                     |                                                                                           |                                                                                                                                  |                                      | Deduced R                                                        | Interpolated $R_1$ | Reduced Clock Difference $d_1$                                 |                                             |                                                                                                    |                                                                                            |                                                                                  |                |                                                                                      |
| 1883<br>December 10 | $h \quad m \quad s$<br>5 1 18<br>3 10<br>4 34<br>5 38                                     | $m \quad s$<br>17 51' 79.4<br>52' 20.8<br>48' 8.37<br>48' 59.3                                                                   | E<br>W<br>E<br>W                     | $s$<br>-0.021<br>at<br>5 <sup>h</sup> 30 <sup>m</sup>            |                    | $m \quad s$<br>17 51' 79.3<br>52' 20.8<br>48' 8.37<br>48' 59.4 | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1.478$<br>at E, $Q = 1.807$                                                             | +<br>$s$<br>0.043                                                                          | $D = 17 \ 50.354$<br>$T_E = 5 \ 15 \ 52$                                         |                |                                                                                      |
| "                   | 5 3 40<br>5 54 23<br>55 27<br>57 10<br>58 11<br>5 56 18                                   | 17 50' 35.8<br>17 51' 78.3<br>52' 20.0<br>48' 8.08<br>48' 56.7<br>17 50' 34.0                                                    | E<br>W<br>E<br>W                     |                                                                  |                    | 17 51' 78.2<br>52' 20.0<br>48' 8.08<br>48' 56.8                | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1.487$<br>at E, $Q = 1.816$                                                             | 0.045                                                                                      | $D = 17 \ 50.349$<br>$T_E = 5 \ 29 \ 31$                                         |                |                                                                                      |
| December 11         | 5 0 58<br>3 24<br>4 21<br>6 11<br>5 3 44<br>5 54 10<br>56 10<br>58 10<br>59 11<br>5 56 55 | 17 51' 81.6<br>52' 27.3<br>48' 8.77<br>48' 6.00<br>17 50' 39.2<br>17 51' 80.8<br>52' 27.0<br>48' 8.88<br>48' 6.02<br>17 50' 39.2 | E<br>W<br>E<br>W<br>E<br>W<br>E<br>W |                                                                  |                    | $s$<br>0.000<br>at<br>5 <sup>h</sup> 30 <sup>m</sup>           |                                             | 17 51' 81.6<br>52' 27.3<br>48' 8.77<br>48' 6.00<br>17 51' 80.8<br>52' 27.0<br>48' 8.88<br>48' 6.02 | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$<br>$\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1.470$<br>at E, $Q = 1.837$<br>at W, $Q = 1.460$<br>at E, $Q = 1.834$ | 0.045<br>0.044 | $D = 17 \ 50.392$<br>$T_E = 5 \ 15 \ 52$<br>$D = 17 \ 50.392$<br>$T_E = 5 \ 29 \ 32$ |
| "                   | 5 2 26<br>4 11<br>5 10<br>7 10<br>5 4 44<br>5 55 10<br>56 40<br>57 32<br>59 10<br>5 57 8  | 17 52' 20.0<br>52' 68.7<br>49' 23.1<br>49' 00.2<br>17 50' 78.0<br>17 52' 22.3<br>52' 70.3<br>49' 26.0<br>49' 00.8<br>17 50' 79.9 | E<br>W<br>E<br>W<br>E<br>W<br>E<br>W |                                                                  |                    |                                                                |                                             | 17 52' 20.1<br>52' 68.7<br>49' 23.1<br>49' 00.1<br>17 52' 22.4<br>52' 70.3<br>49' 26.0<br>49' 00.7 | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$<br>$\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1.485$<br>at E, $Q = 1.843$<br>at W, $Q = 1.482$<br>at E, $Q = 1.848$ | 0.064<br>0.057 | $D = 17 \ 50.784$<br>$T_E = 5 \ 15 \ 52$<br>$D = 17 \ 50.789$<br>$T_E = 5 \ 29 \ 32$ |

TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Akyab (E) and Calcutta (W).*

| Astronomical Date   | Observed Hour at E, Mean = $t_E$                                                                                                                            | Observed Clock Difference d and Mean                                                                                              | Signals transmitted, from                       | Relative Hourly Clock Rate Correction at given Epochs by E Clock |                    | Reduction of d to $t_E$ by Relative Rate Correction R                                              |                                                                    | Pen Equation, Q,<br>at E, $Q = \frac{-\beta + \delta}{2}$<br>at W, $Q = \frac{\alpha - \gamma}{2}$ | Retardation =<br>$\frac{\beta + \delta}{4}$<br>minus<br>$\frac{\alpha + \gamma}{4}$ | Deduced Clock Differences D<br>at Epochs by E Clock $T_E$                                                            |                                      |                                                                                                                      |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------|--------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------------------------------------------|
|                     |                                                                                                                                                             |                                                                                                                                   |                                                 | Deduced R                                                        | Interpolated $R_1$ | Reduced Clock Difference $d_1$                                                                     |                                                                    |                                                                                                    |                                                                                     |                                                                                                                      |                                      |                                                                                                                      |
| 1883<br>December 13 | $\begin{array}{r} h \quad m \quad s \\ 5 \quad 2 \quad 10 \\ \\ 4 \quad 10 \\ \\ 5 \quad 10 \\ \\ 7 \quad 10 \end{array}$                                   | $\begin{array}{r} m \quad s \\ 17 \quad 52'676 \\ \\ 53'146 \\ \\ 49'701 \\ \\ 49'483 \end{array}$                                | $\begin{array}{c} E \\ W \\ E \\ W \end{array}$ | $\begin{array}{c} s \\ -0'003 \\ nt \\ 5^h 31^m \end{array}$     |                    | $\begin{array}{r} m \quad s \\ 17 \quad 52'676 \\ \\ 53'146 \\ \\ 49'701 \\ \\ 49'483 \end{array}$ | $\begin{array}{c} \alpha \\ \beta \\ \gamma \\ \delta \end{array}$ | $\begin{array}{c} at W, \quad Q = 1'488 \\ \\ \\ at E, \quad Q = 1'832 \end{array}$                | $\begin{array}{c} + \\ s \\ 0'063 \end{array}$                                      | $\begin{array}{c} m \quad s \\ D = 17 \quad 51'251 \\ \\ h \quad m \quad s \\ T_E = 5 \quad 15 \quad 53 \end{array}$ |                                      |                                                                                                                      |
| "                   | $\begin{array}{r} 5 \quad 4 \quad 40 \\ \\ 5 \quad 54 \quad 24 \\ \\ 56 \quad 10 \\ \\ 57 \quad 31 \\ \\ 59 \quad 10 \\ \\ 5 \quad 56 \quad 49 \end{array}$ | $\begin{array}{r} 17 \quad 51'252 \\ \\ 17 \quad 52'662 \\ \\ 53'138 \\ \\ 49'710 \\ \\ 49'486 \\ \\ 17 \quad 51'249 \end{array}$ | $\begin{array}{c} E \\ W \\ E \\ W \end{array}$ |                                                                  |                    | $\begin{array}{r} 17 \quad 52'662 \\ \\ 53'138 \\ \\ 49'710 \\ \\ 49'486 \end{array}$              | $\begin{array}{c} \alpha \\ \beta \\ \gamma \\ \delta \end{array}$ | $\begin{array}{c} at W, \quad Q = 1'476 \\ \\ \\ at E, \quad Q = 1'826 \end{array}$                | $\begin{array}{c} 0'063 \end{array}$                                                | $\begin{array}{c} m \quad s \\ D = 17 \quad 51'250 \\ \\ h \quad m \quad s \\ T_E = 5 \quad 29 \quad 32 \end{array}$ |                                      |                                                                                                                      |
| December 14         | $\begin{array}{r} 5 \quad 1 \quad 41 \\ \\ 3 \quad 40 \\ \\ 5 \quad 10 \\ \\ 6 \quad 37 \end{array}$                                                        | $\begin{array}{r} 17 \quad 52 \quad 917 \\ \\ 53'399 \\ \\ 49'933 \\ \\ 49'701 \end{array}$                                       | $\begin{array}{c} E \\ W \\ E \\ W \end{array}$ |                                                                  |                    | $\begin{array}{c} s \\ 0'000 \\ nt \\ 5^h 31^m \end{array}$                                        |                                                                    | $\begin{array}{r} 17 \quad 52'917 \\ \\ 53'399 \\ \\ 49'933 \\ \\ 49'701 \end{array}$              | $\begin{array}{c} \alpha \\ \beta \\ \gamma \\ \delta \end{array}$                  | $\begin{array}{c} at W, \quad Q = 1'492 \\ \\ \\ at E, \quad Q = 1'849 \end{array}$                                  | $\begin{array}{c} 0'063 \end{array}$ | $\begin{array}{c} m \quad s \\ D = 17 \quad 51'488 \\ \\ h \quad m \quad s \\ T_E = 5 \quad 15 \quad 53 \end{array}$ |
| "                   | $\begin{array}{r} 5 \quad 4 \quad 17 \\ \\ 5 \quad 54 \quad 31 \\ \\ 56 \quad 46 \\ \\ 58 \quad 10 \\ \\ 59 \quad 11 \\ \\ 5 \quad 57 \quad 10 \end{array}$ | $\begin{array}{r} 17 \quad 51'488 \\ \\ 17 \quad 52'900 \\ \\ 53'401 \\ \\ 49'958 \\ \\ 49'692 \\ \\ 17 \quad 51'488 \end{array}$ | $\begin{array}{c} E \\ W \\ E \\ W \end{array}$ |                                                                  |                    |                                                                                                    |                                                                    | $\begin{array}{r} 17 \quad 52'900 \\ \\ 53'401 \\ \\ 49'958 \\ \\ 49'692 \end{array}$              | $\begin{array}{c} \alpha \\ \beta \\ \gamma \\ \delta \end{array}$                  | $\begin{array}{c} at W, \quad Q = 1'471 \\ \\ \\ at E, \quad Q = 1'855 \end{array}$                                  | $\begin{array}{c} 0'059 \end{array}$ | $\begin{array}{c} m \quad s \\ D = 17 \quad 51'488 \\ \\ h \quad m \quad s \\ T_E = 5 \quad 29 \quad 32 \end{array}$ |



TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date   | Observed Hour at E,<br>Mean = $t_E$                       | Observed Clock Difference d and Mean                           | Signals transmitted, from | Relative Hourly Clock Rate<br>Correction at given Epochs by E Clock |                    | Reduction of d to $t_E$ by Relative Rate Correction R    |                                             | Pen Equation, Q,<br>at E, $Q = \frac{-\beta + \delta}{2}$<br>at W, $Q = \frac{\alpha - \gamma}{2}$ | Retardation<br>$= \frac{\beta + \delta}{4}$<br>minus<br>$\frac{\alpha + \gamma}{4}$ | Deduced Clock Differences D<br>at Epochs by E Clock $T_E$ |                                             |                                        |                   |                                       |
|---------------------|-----------------------------------------------------------|----------------------------------------------------------------|---------------------------|---------------------------------------------------------------------|--------------------|----------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------|---------------------------------------------|----------------------------------------|-------------------|---------------------------------------|
|                     |                                                           |                                                                |                           | Deduced R                                                           | Interpolated $R_1$ | Reduced Clock Difference $d_1$                           |                                             |                                                                                                    |                                                                                     |                                                           |                                             |                                        |                   |                                       |
| 1883<br>December 26 | $h \quad m \quad s$<br>5 36 22<br>38 11<br>39 10<br>41 10 | $m \quad s$<br>3 59'591<br>4 0'011<br>3 56'591<br>56'277       | E<br>W<br>E<br>W          | $\frac{s}{-0'441}$<br>at<br>$6^h \ 1^m$                             |                    | $m \quad s$<br>3 59'574<br>4 0'007<br>3 56'594<br>56'295 | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1'490$<br>at E, $Q = 1'856$                                                             | +<br>$\frac{s}{0'034}$                                                              | $D = 3 \ 58'026$<br>$T_E = 5 \ 51'16$                     |                                             |                                        |                   |                                       |
| "                   | 5 38 43<br>6 21 30<br>23 11<br>24 43<br>25 43<br>6 23 47  | 3 58'118<br>3 59'226<br>59'706<br>56'243<br>55'973<br>3 57'787 | E<br>W<br>E<br>W          |                                                                     |                    | 3 59'209<br>59'702<br>56'250<br>55'987                   | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1'480$<br>at E, $Q = 1'858$                                                             | $\frac{s}{0'058}$                                                                   | $D = 3 \ 57'914$<br>$T_E = 6 \ 6'32$                      |                                             |                                        |                   |                                       |
| December 27         | 5 36 13<br>38 11<br>39 11<br>41 11                        | 3 50'112<br>50'598<br>47'139<br>46'825                         | E<br>W<br>E<br>W          |                                                                     |                    | $\frac{s}{-0'399}$<br>at<br>$6^h \ 1^m$                  |                                             | 3 50'095<br>50'595<br>47'142<br>46'842                                                             | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$                                         | at W, $Q = 1'477$<br>at E, $Q = 1'877$                    | $\frac{s}{0'050}$                           | $D = 3 \ 48'586$<br>$T_E = 5 \ 51'15$  |                   |                                       |
| "                   | 5 38 42<br>6 21 11<br>23 10<br>24 33<br>26 11<br>6 23 46  | 3 48'669<br>3 49'855<br>50'293<br>46'818<br>46'508<br>3 48'369 | E<br>W<br>E<br>W          |                                                                     |                    |                                                          |                                             | 3 49'838<br>50'289<br>46'823<br>46'524                                                             | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$                                         | at W, $Q = 1'508$<br>at E, $Q = 1'883$                    | $\frac{s}{0'038}$                           | $D = 3 \ 48'484$<br>$T_E = 6 \ 6'32$   |                   |                                       |
| December 28         | 5 36 10<br>38 21<br>39 48<br>40 47                        | 3 40'456<br>40'912<br>37'499<br>37'168                         | E<br>W<br>E<br>W          |                                                                     |                    |                                                          |                                             | $\frac{s}{-0'449}$<br>at<br>$6^h \ 1^m$                                                            |                                                                                     | 3 40'436<br>40'909<br>37'507<br>37'183                    | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1'465$<br>at E, $Q = 1'863$ | $\frac{s}{0'037}$ | $D = 3 \ 38'916$<br>$T_E = 5 \ 51'14$ |
| "                   | 5 38 47<br>6 21 23<br>23 11<br>24 10<br>26 11<br>6 23 44  | 3 39'009<br>3 40'108<br>40'598<br>37'180<br>36'806<br>3 38'673 | E<br>W<br>E<br>W          |                                                                     |                    |                                                          |                                             |                                                                                                    |                                                                                     | 3 40'090<br>40'594<br>37'183<br>36'824                    | $\alpha$<br>$\beta$<br>$\gamma$<br>$\delta$ | at W, $Q = 1'454$<br>at E, $Q = 1'885$ | $\frac{s}{0'036}$ | $D = 3 \ 38'793$<br>$T_E = 6 \ 7'39$  |



TABLE IV. REDUCTION OF DIRECT COMPARISONS OF CLOCKS.

*Arc Akyab (E) and Chittagong (W).*

| Astronomical Date | Observed Hour at E,<br>Mean = $t_E$ |          |          | Observed Clock Difference d and Mean | Signals transmitted, from | Relative Hourly Clock Rate<br>Correction at given Epochs by E Clock |                                                                 | Reduction of d to $t_E$<br>by Relative Rate Correction R |                   | Pen Equation, Q,<br>at E, $Q = \frac{-\beta + \delta}{2}$<br>at W, $Q = \frac{\alpha - \gamma}{2}$ | Retardation<br>= $\frac{\beta + \delta}{4}$<br>minus $\frac{\alpha + \gamma}{4}$ | Deduced Clock Differences<br>D<br>at Epochs by E Clock<br>$T_E$ |
|-------------------|-------------------------------------|----------|----------|--------------------------------------|---------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|----------------------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-----------------------------------------------------------------|
|                   |                                     |          |          |                                      |                           | Deduced R                                                           | Interpolated $R_1$                                              | Reduced Clock Difference $d_1$                           |                   |                                                                                                    |                                                                                  |                                                                 |
| 1884<br>January 3 | <i>h</i>                            | <i>m</i> | <i>s</i> | <i>m</i>                             | <i>s</i>                  |                                                                     |                                                                 | <i>m</i>                                                 | <i>s</i>          |                                                                                                    |                                                                                  |                                                                 |
|                   | 5                                   | 36       | 10       | 2                                    | 40 <sup>841</sup>         | E                                                                   |                                                                 | 2                                                        | 40 <sup>826</sup> | $\alpha$                                                                                           |                                                                                  | D = 2 39 <sup>295</sup>                                         |
|                   |                                     | 37       | 28       |                                      | 41 <sup>327</sup>         | W                                                                   |                                                                 |                                                          | 41 <sup>321</sup> | $\beta$                                                                                            | +                                                                                |                                                                 |
|                   |                                     | 39       | 10       |                                      | 37 <sup>874</sup>         | E                                                                   |                                                                 |                                                          | 37 <sup>880</sup> | $\gamma$                                                                                           | 0 <sup>033</sup>                                                                 | $T_E = 5\ 51\ 10$                                               |
|                   |                                     | 40       | 25       |                                      | 37 <sup>502</sup>         | W                                                                   |                                                                 |                                                          | 37 <sup>517</sup> | $\delta$                                                                                           |                                                                                  |                                                                 |
|                   | 5                                   | 38       | 18       | 2                                    | 39 <sup>386</sup>         |                                                                     | $s$<br>-0 <sup>424</sup><br>at<br>6 <sup>h</sup> 1 <sup>m</sup> |                                                          |                   |                                                                                                    |                                                                                  |                                                                 |
| "                 | 6                                   | 21       | 10       | 2                                    | 40 <sup>512</sup>         | E                                                                   |                                                                 | 2                                                        | 40 <sup>497</sup> | $\alpha$                                                                                           |                                                                                  | D = 2 39 <sup>187</sup>                                         |
|                   |                                     | 22       | 28       |                                      | 41 <sup>006</sup>         | W                                                                   |                                                                 |                                                          | 41 <sup>000</sup> | $\beta$                                                                                            | 0 <sup>038</sup>                                                                 | $T_E = 6\ 6\ 27$                                                |
|                   |                                     | 23       | 48       |                                      | 37 <sup>559</sup>         | E                                                                   |                                                                 |                                                          | 37 <sup>563</sup> | $\gamma$                                                                                           |                                                                                  |                                                                 |
|                   |                                     | 25       | 47       |                                      | 37 <sup>194</sup>         | W                                                                   |                                                                 |                                                          | 37 <sup>212</sup> | $\delta$                                                                                           |                                                                                  |                                                                 |
|                   | 6                                   | 23       | 18       | 2                                    | 39 <sup>068</sup>         |                                                                     |                                                                 |                                                          |                   |                                                                                                    |                                                                                  |                                                                 |
| January 4         | 5                                   | 36       | 10       | 2                                    | 31 <sup>000</sup>         | E                                                                   |                                                                 | 2                                                        | 30 <sup>983</sup> | $\alpha$                                                                                           |                                                                                  | D = 2 29 <sup>443</sup>                                         |
|                   |                                     | 37       | 41       |                                      | 31 <sup>494</sup>         | W                                                                   |                                                                 |                                                          | 31 <sup>488</sup> | $\beta$                                                                                            | 0 <sup>046</sup>                                                                 | $T_E = 5\ 51\ 9$                                                |
|                   |                                     | 39       | 11       |                                      | 28 <sup>001</sup>         | E                                                                   |                                                                 |                                                          | 28 <sup>007</sup> | $\gamma$                                                                                           |                                                                                  |                                                                 |
|                   |                                     | 40       | 38       |                                      | 27 <sup>667</sup>         | W                                                                   |                                                                 |                                                          | 27 <sup>684</sup> | $\delta$                                                                                           |                                                                                  |                                                                 |
|                   | 5                                   | 38       | 25       | 2                                    | 29 <sup>541</sup>         |                                                                     | $s$<br>-0 <sup>462</sup><br>at<br>6 <sup>h</sup> 1 <sup>m</sup> |                                                          |                   |                                                                                                    |                                                                                  |                                                                 |
| "                 | 6                                   | 21       | 17       | 2                                    | 30 <sup>680</sup>         | E                                                                   |                                                                 | 2                                                        | 30 <sup>665</sup> | $\alpha$                                                                                           |                                                                                  | D = 2 29 <sup>326</sup>                                         |
|                   |                                     | 23       | 1        |                                      | 31 <sup>116</sup>         | W                                                                   |                                                                 |                                                          | 31 <sup>114</sup> | $\beta$                                                                                            | 0 <sup>020</sup>                                                                 | $T_E = 6\ 6\ 26$                                                |
|                   |                                     | 23       | 38       |                                      | 27 <sup>683</sup>         | E                                                                   |                                                                 |                                                          | 27 <sup>686</sup> | $\gamma$                                                                                           |                                                                                  |                                                                 |
|                   |                                     | 25       | 10       |                                      | 27 <sup>303</sup>         | W                                                                   |                                                                 |                                                          | 27 <sup>318</sup> | $\delta$                                                                                           |                                                                                  |                                                                 |
|                   | 6                                   | 23       | 17       | 2                                    | 29 <sup>196</sup>         |                                                                     |                                                                 |                                                          |                   |                                                                                                    |                                                                                  |                                                                 |

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

| BY STARS OF  | OBSERVED WITH TELESCOPE NO. 1. |             |                    |                  |             |                    | OBSERVED WITH TELESCOPE NO. 2. |             |                    |                   |             |                    |
|--------------|--------------------------------|-------------|--------------------|------------------|-------------|--------------------|--------------------------------|-------------|--------------------|-------------------|-------------|--------------------|
|              | At CALCUTTA                    |             |                    |                  |             |                    | At CALCUTTA                    |             |                    |                   |             |                    |
|              | November 8, 1883               |             |                    | November 9, 1883 |             |                    | November 13, 1883              |             |                    | November 14, 1883 |             |                    |
|              | Star                           | Declination | Equation<br>S - H  | Star             | Declination | Equation<br>S - H  | Star                           | Declination | Equation<br>S - H  | Star              | Declination | Equation<br>S - H  |
| NORTH ASPECT | 334                            | + 35        | - 0.06             | 250              | + 23        | - 0.06             | 7568                           | + 28        | - 0.05             | 7505              | + 38        | - 0.24             |
|              | 365                            | + 24        | + .08              | 267              | + 28        | + .05              | 7607                           | + 30        | - .01              | 7568              | + 28        | + .16              |
|              | 404                            | + 45        | + .13              | 310              | + 32        | + .04              | 7623                           | + 28        | + .02              | 7607              | + 30        | + .04              |
|              | 441                            | + 46        | - .02              | 334              | + 35        | - .02              | 7693                           | + 28        | - .06              | 7623              | + 28        | - .12              |
|              | 510                            | + 42        | .00                | 358              | + 29        | - .03              | 7721                           | + 33        | + .02              | 7693              | + 28        | + .07              |
|              | 544                            | + 37        | + .18              | 358              | + 29        | - .10              | 7743                           | + 42        | - .10              | 7721              | + 33        | + .11              |
|              | 593                            | + 23        | + .07              | 395              | + 27        | + .02              | 7798                           | + 28        | - .10              | 7743              | + 42        | - .13              |
|              | 614                            | + 54        | + .07              | 404              | + 45        | - .01              | 7843                           | + 32        | + .05              | 7798              | + 28        | + .01              |
|              | 647                            | + 25        | + .05              | 441              | + 46        | + .04              | 7858                           | + 39        | - .10              | 7813              | + 32        | + .04              |
|              | 662                            | + 39        | + .01              | 510              | + 42        | + .02              | 7880                           | + 39        | - .05              | 7858              | + 39        | + .03              |
|              | 662                            | + 39        | + .01              | 7474             | + 23        | + .02              |                                |             |                    | 7880              | + 39        | - .11              |
|              | 7474                           | + 23        | - .03              | 7505             | + 38        | + .01              |                                |             |                    | 7931              | + 39        | - .09              |
|              | 7505                           | + 38        | + .24              | 7568             | + 28        | + .06              |                                |             |                    |                   |             |                    |
|              | 7568                           | + 28        | + .09              | 7607             | + 30        | + .06              |                                |             |                    |                   |             |                    |
|              | 7607                           | + 30        | - .08              | 7623             | + 28        | - .05              |                                |             |                    |                   |             |                    |
|              | 7627                           | + 25        | + .04              | 7693             | + 28        | + .01              |                                |             |                    |                   |             |                    |
|              | 7693                           | + 28        | + .06              | 7713             | + 42        | + .07              |                                |             |                    |                   |             |                    |
|              | 7757                           | + 28        | .00                | 7777             | + 37        | + .02              |                                |             |                    |                   |             |                    |
|              | 7798                           | + 28        | - .01              | 7798             | + 28        | + .04              |                                |             |                    |                   |             |                    |
|              | 7843                           | + 32        | - .07              | 7843             | + 32        | - .01              |                                |             |                    |                   |             |                    |
|              | 7914                           | + 29        | + .03              |                  |             |                    |                                |             |                    |                   |             |                    |
|              | 7945                           | + 23        | - .04              |                  |             |                    |                                |             |                    |                   |             |                    |
| SOUTH ASPECT | Mean ( $S_N - H_N$ )           |             | + 0.034<br>± 0.011 |                  |             | + 0.009<br>± 0.007 |                                |             | - 0.038<br>± 0.012 |                   |             | - 0.019<br>± 0.023 |
|              | 284                            | + 7         | - 0.01             | 233              | - 11        | + 0.04             | 7520                           | + 19        | + 0.01             | 7490              | - 21        | + 0.08             |
|              | 386                            | + 3         | + .01              | 242              | - 2         | + .10              | 7547                           | + 5         | + .03              | 7520              | + 19        | + .03              |
|              | 459                            | + 11        | + .02              | 274              | + 6         | + .06              | 7590                           | + 17        | + .09              | 7547              | + 5         | - .08              |
|              | 477                            | + 17        | - .05              | 288              | + 7         | - .08              | 7639                           | + 6         | + .10              | 7590              | + 17        | - .13              |
|              | 533                            | + 20        | .00                | 386              | - 3         | + .10              | 7672                           | - 3         | + .19              | 7639              | - 18        | + .05              |
|              | 561                            | + 10        | + .07              | 419              | - 9         | + .04              | 7781                           | - 14        | + .03              | 7659              | + 6         | .00                |
|              | 577                            | + 20        | - .01              | 431              | + 19        | + .04              | 7814                           | + 1         | + .06              | 7672              | - 3         | + .04              |
|              | 687                            | + 4         | + .09              | 459              | + 11        | + .15              | 7827                           | + 4         | .00                | 7762              | - 6         | + .06              |
|              | 707                            | + 19        | + .01              | 477              | + 17        | - .02              | 7893                           | + 19        | + .03              | 7781              | - 14        | - .09              |
|              | 7433                           | - 4         | + .19              | 533              | + 20        | - .02              | 7937                           | + 19        | + .10              | 7814              | + 1         | - .01              |
|              | 7520                           | + 19        | - .01              | 7433             | - 4         | + .01              |                                |             |                    | 7827              | + 4         | + .08              |
|              | 7547                           | + 5         | - .03              | 7490             | - 21        | - .07              |                                |             |                    | 7893              | + 19        | + .03              |
|              | 7590                           | + 17        | + .02              | 7520             | + 19        | + .06              |                                |             |                    |                   |             |                    |
|              | 7664                           | + 13        | - .01              | 7547             | + 5         | + .02              |                                |             |                    |                   |             |                    |
|              | 7733                           | + 20        | - .07              | 7590             | + 17        | + .03              |                                |             |                    |                   |             |                    |
|              | 7823                           | + 4         | + .05              | 7639             | - 18        | + .04              |                                |             |                    |                   |             |                    |
|              | 7868                           | - 1         | + .09              | 7659             | + 6         | - .07              |                                |             |                    |                   |             |                    |
|              | 7893                           | + 19        | - .06              | 7672             | - 3         | - .06              |                                |             |                    |                   |             |                    |
|              |                                |             |                    | 7762             | - 6         | + .01              |                                |             |                    |                   |             |                    |
|              |                                |             |                    | 7814             | + 1         | + .04              |                                |             |                    |                   |             |                    |
|              |                                |             |                    | 7827             | + 4         | .00                |                                |             |                    |                   |             |                    |
| SOUTH ASPECT | Mean ( $S_S - H_S$ )           |             | + 0.037<br>± 0.010 |                  |             | + 0.020<br>± 0.009 |                                |             | + 0.064<br>± 0.012 |                   |             | + 0.005<br>± 0.014 |

TABLE V. ABSTRACT OF OBSERVED VALUES OF PERSONAL EQUATION

*Between Majors Strahan and Heaviside.*

| OBSERVED WITH TELESCOPE No. 1. |                                         |             |                   |                |             |                   |
|--------------------------------|-----------------------------------------|-------------|-------------------|----------------|-------------|-------------------|
| BY STARS OF                    | At CALCUTTA                             |             |                   |                |             |                   |
|                                | April 26, 1884                          |             |                   | April 28, 1884 |             |                   |
|                                | Star                                    | Declination | Equation<br>S - H | Star           | Declination | Equation<br>S - H |
| NORTH ASPECT                   |                                         | °           | s                 |                | °           | s                 |
|                                | 4694                                    | + 31        | - 0.02            | 3144           | + 35        | 0.00              |
|                                | 4699                                    | + 44        | + .01             | 3194           | + 26        | - .11             |
|                                | 4747                                    | + 36        | - .02             | 3238           | + 34        | + .02             |
|                                | 4758                                    | + 39        | + .15             | 3246           | + 23        | - .12             |
|                                | 4783                                    | + 39        | - .04             | 3255           | + 29        | - .09             |
|                                | 4808                                    | + 31        | .00               | 3327           | + 24        | .00               |
|                                | 4816                                    | + 37        | - .05             | 3341           | + 47        | - .08             |
|                                | 4830                                    | + 50        | - .04             | 3358           | + 55        | + .08             |
|                                | 4841                                    | + 44        | - .11             | 3399           | + 42        | - .01             |
|                                | 4864                                    | + 27        | - .05             | 3416           | + 33        | + .04             |
|                                | 4897                                    | + 38        | - .05             | 3439           | + 36        | .00               |
|                                | 4937                                    | + 50        | + .06             | 3446           | + 36        | - .02             |
|                                | 4943                                    | + 40        | - .12             |                |             |                   |
|                                | 4969                                    | + 27        | - .03             |                |             |                   |
|                                | 4981                                    | + 25        | - .02             |                |             |                   |
|                                | 5000                                    | + 34        | - .01             |                |             |                   |
|                                | 5113                                    | + 48        | + .05             |                |             |                   |
|                                | Mean (S <sub>N</sub> - H <sub>N</sub> ) |             | - 0.017           |                |             | - 0.024           |
|                                |                                         |             | ± 0.010           |                |             | ± 0.012           |
| SOUTH ASPECT                   | 4716                                    | - 10        | + 0.04            | 3132           | + 15        | + 0.02            |
|                                | 4721                                    | + 14        | - .10             | 3160           | - 6         | .00               |
|                                | 4729                                    | + 20        | + .08             | 3171           | + 18        | + .09             |
|                                | 4737                                    | + 16        | + .07             | 3209           | + 17        | - .01             |
|                                | 4766                                    | + 9         | + .02             | 3227           | + 10        | - .02             |
|                                | 4798                                    | + 1         | + .04             | 3270           | + 13        | + .03             |
|                                | 4873                                    | + 17        | - .01             | 3278           | + 17        | + .05             |
|                                | 4886                                    | + 3         | + .08             | 3299           | + 14        | + .01             |
|                                | 4905                                    | + 20        | + .09             | 3312           | + 10        | + .06             |
|                                | 4926                                    | + 15        | - .05             | 3318           | + 21        | + .07             |
|                                | 4951                                    | + 3         | + .05             | 3380           | + 7         | + .08             |
|                                | 5024                                    | + 5         | + .08             | 3423           | + 23        | - .01             |
|                                | 5047                                    | + 2         | + .04             | 3463           | + 7         | + .02             |
|                                | 5059                                    | + 1         | + .04             |                |             |                   |
|                                | 5073                                    | - 1         | + .05             |                |             |                   |
|                                | 5085                                    | + 16        | + .03             |                |             |                   |
|                                | 5095                                    | + 2         | + .02             |                |             |                   |
|                                | Mean (S <sub>S</sub> - H <sub>S</sub> ) |             | + 0.034           |                |             | + 0.030           |
|                                |                                         |             | ± 0.008           |                |             | ± 0.007           |

NOTE.—On the 26th April the Bohnenberger eye-piece of Telescope No. 1 was used; on the 28th the eye-piece of Telescope No. 2 was employed.

*Between Majors Strahan and Heaviside.*

| SEASON  | BY STARS OF NORTH ASPECT |                  |                                    |                    |                          | BY STARS OF SOUTH ASPECT |                  |                                    |                    |                          |
|---------|--------------------------|------------------|------------------------------------|--------------------|--------------------------|--------------------------|------------------|------------------------------------|--------------------|--------------------------|
|         | Astronomical Date        | Telescope in use | Mean Value of Equation $S_N - H_N$ | Combination Weight | General Mean $S_N - H_N$ | Astronomical Date        | Telescope in use | Mean Value of Equation $S_S - H_S$ | Combination Weight | General Mean $S_S - H_S$ |
| 1883-84 | 1883                     |                  | <i>s</i>                           |                    | <i>s</i>                 | 1883                     |                  | <i>s</i>                           |                    | <i>s</i>                 |
|         | November 8               | No. 1            | + 0.034                            | 83                 |                          | November 8               | No. 1            | + 0.017                            | 100                |                          |
|         | " 9                      | " 1              | + .009                             | 204                | + 0.004                  | " 9                      | " 1              | + .020                             | 123                | + 0.026                  |
|         | " 13                     | " 2              | - .038                             | 69                 |                          | " 13                     | " 2              | + .064                             | 69                 |                          |
|         | " 14                     | " 2              | - .019                             | 19                 |                          | " 14                     | " 2              | + .005                             | 51                 |                          |
|         | 1884                     |                  |                                    |                    |                          | 1884                     |                  |                                    |                    |                          |
|         | April 26                 | No. 1            | - 0.017                            | 100                | - 0.020                  | April 26                 | No. 1            | + 0.034                            | 156                | + 0.032                  |
|         | " 28                     | " 1              | - .024                             | 69                 |                          | " 28                     | " 1              | + .030                             | 204                |                          |

NOTE.—On the 26th April the Bohnenberger Eye-piece of Telescope No. 1 was used; on the 28th the Eye-piece of Telescope No. 2 was employed.

*Final Values of the Equation adopted.*

The values applied throughout the computations for season 1883-84, are

$$S_N - H_N = -0.008, \text{ and } S_S - H_S = +0.029.$$

The general symbol  $S - H$  signifies a quantity which must be added to times observed by Major Heaviside, before they are compared with those observed by Major Strahan.

*Of Majors Strahan and Heaviside, Season 1883-84.*

| ARC AKYAB-CALCUTTA |                   |                          |                     |                   |                          | ARC AKYAB-CHITTAGONG |                   |                          |                       |                   |                          | ARC PROME-CHITTAGONG |                   |                          |                       |                   |                          |
|--------------------|-------------------|--------------------------|---------------------|-------------------|--------------------------|----------------------|-------------------|--------------------------|-----------------------|-------------------|--------------------------|----------------------|-------------------|--------------------------|-----------------------|-------------------|--------------------------|
| Heaviside at Akyab |                   |                          | Strahan at Calcutta |                   |                          | Heaviside at Akyab   |                   |                          | Strahan at Chittagong |                   |                          | Heaviside at Prome   |                   |                          | Strahan at Chittagong |                   |                          |
| Star               | Equation<br>N - S | Aspect first<br>observed | Star                | Equation<br>N - S | Aspect first<br>observed | Star                 | Equation<br>N - S | Aspect first<br>observed | Star                  | Equation<br>N - S | Aspect first<br>observed | Star                 | Equation<br>N - S | Aspect first<br>observed | Star                  | Equation<br>N - S | Aspect first<br>observed |
| 1045               | + 0.08            | N                        | 1069                | + 0.04            | S                        | 1651                 | + 0.07            | N                        | 1714                  | - 0.09            | N                        | 2271                 | 0.00              | S                        | 2313                  | - 0.17            | N                        |
| 1135               | - 0.02            | S                        | 1107                | + 0.14            | N                        |                      | + 0.12            | "                        |                       | + 0.01            | "                        |                      | - 0.05            | "                        |                       | - 0.07            | "                        |
| 1311               | + 0.01            | "                        | 1367                | + 0.04            | "                        |                      | + 0.08            | "                        |                       | - 0.13            | "                        |                      | + 0.02            | "                        |                       | - 0.02            | "                        |
|                    | - 0.08            | "                        | 1371                | 0.00              | "                        |                      | + 0.03            | "                        |                       | - 0.03            | "                        |                      | - 0.02            | "                        |                       | - 0.14            | "                        |
|                    | 0.00              | "                        |                     | - 0.05            | "                        |                      | + 0.02            | "                        |                       | + 0.01            | "                        |                      | + 0.02            | "                        |                       | + 0.01            | "                        |
|                    | + 0.06            | "                        |                     | - 0.01            | "                        |                      | + 0.05            | "                        |                       | - 0.03            | "                        |                      | - 0.08            | "                        |                       | - 0.07            | "                        |
|                    | - 0.04            | "                        |                     | - 0.10            | "                        |                      | + 0.05            | "                        |                       | - 0.01            | "                        |                      | - 0.05            | "                        |                       | - 0.10            | "                        |
|                    | + 0.07            | "                        |                     | - 0.01            | "                        | 1734                 | + 0.03            | S                        |                       | - 0.09            | "                        | 2519                 | + 0.12            | N                        |                       | - 0.10            | "                        |
|                    | + 0.02            | "                        |                     | - 0.08            | "                        |                      | - 0.09            | "                        | 1742                  | + 0.04            | S                        |                      | + 0.05            | "                        | 2657                  | - 0.01            | S                        |
| 1037               | - 0.01            | N                        |                     | - 0.02            | "                        |                      | 0.00              | "                        |                       | + 0.05            | "                        |                      | + 0.05            | "                        |                       | + 0.03            | "                        |
|                    | + 0.05            | "                        | 1449                | + 0.13            | S                        |                      | + 0.02            | "                        |                       | + 0.03            | "                        |                      | + 0.10            | "                        |                       | + 0.03            | "                        |
|                    | 0.00              | "                        |                     | - 0.09            | N                        |                      | + 0.01            | "                        |                       | + 0.03            | "                        |                      | + 0.06            | "                        |                       | + 0.02            | "                        |
|                    | - 0.02            | "                        |                     | - 0.10            | "                        |                      | + 0.05            | "                        |                       | + 0.04            | "                        |                      | + 0.06            | "                        |                       | + 0.09            | "                        |
|                    | + 0.01            | "                        |                     | - 0.01            | "                        |                      | + 0.02            | "                        |                       | + 0.05            | "                        |                      | + 0.06            | "                        |                       | + 0.14            | "                        |
|                    | + 0.07            | "                        |                     | - 0.11            | "                        |                      | 0.00              | "                        |                       | - 0.02            | "                        |                      | + 0.12            | "                        |                       | + 0.10            | "                        |
|                    | + 0.09            | "                        |                     | - 0.05            | "                        | 1880                 | + 0.08            | N                        |                       | + 0.04            | "                        | 2605                 | - 0.04            | S                        |                       | - 0.02            | "                        |
| 1733               | - 0.02            | S                        |                     | + 0.06            | "                        |                      | + 0.06            | "                        | 1925                  | + 0.04            | "                        |                      | - 0.03            | "                        | 3117                  | + 0.06            | "                        |
|                    | - 0.04            | "                        |                     | + 0.04            | "                        |                      | + 0.06            | "                        |                       | + 0.07            | "                        |                      | - 0.04            | "                        |                       | 0.00              | "                        |
|                    | - 0.04            | "                        | 1637                | + 0.01            | S                        |                      | + 0.16            | "                        |                       | + 0.08            | "                        |                      | + 0.06            | "                        |                       | + 0.04            | "                        |
|                    | - 0.02            | "                        |                     | - 0.03            | "                        |                      | + 0.02            | "                        |                       | 0.00              | "                        |                      | + 0.01            | "                        |                       | + 0.01            | "                        |
|                    | - 0.03            | "                        |                     | + 0.12            | "                        |                      | + 0.03            | "                        |                       | + 0.07            | "                        |                      | - 0.07            | "                        |                       | + 0.09            | "                        |
|                    | - 0.03            | "                        |                     | + 0.10            | "                        |                      | + 0.12            | "                        |                       | + 0.03            | "                        |                      | + 0.01            | "                        |                       | + 0.09            | "                        |
|                    | 0.00              | "                        |                     | - 0.01            | "                        |                      | + 0.08            | "                        |                       | + 0.03            | "                        | 2649                 | + 0.06            | "                        |                       | + 0.05            | "                        |
| 1820               | 0.00              | "                        |                     | - 0.02            | "                        | 1934                 | - 0.01            | S                        |                       | + 0.06            | "                        |                      | - 0.01            | "                        |                       | + 0.07            | "                        |
| 1986               | - 0.02            | N                        |                     | + 0.08            | "                        |                      | + 0.03            | "                        | 1971                  | + 0.01            | N                        |                      | + 0.08            | N                        | 3123                  | - 0.02            | N                        |
|                    | + 0.03            | "                        | 1742                | + 0.12            | "                        |                      | + 0.02            | "                        |                       | - 0.10            | "                        |                      | + 0.07            | "                        |                       | - 0.06            | "                        |
|                    | + 0.06            | "                        |                     | + 0.07            | "                        |                      | + 0.08            | "                        |                       | - 0.12            | "                        |                      | + 0.10            | "                        |                       | - 0.10            | "                        |
|                    | + 0.03            | "                        |                     | + 0.08            | "                        |                      | + 0.04            | "                        |                       | - 0.08            | "                        |                      | + 0.07            | "                        |                       | - 0.06            | "                        |
|                    | + 0.04            | "                        |                     | + 0.08            | "                        |                      | - 0.03            | "                        |                       | - 0.02            | "                        |                      | + 0.08            | "                        |                       | 0.00              | "                        |
| 2038               | + 0.10            | "                        |                     | + 0.15            | "                        |                      | - 0.07            | "                        |                       | - 0.15            | "                        |                      | + 0.06            | "                        |                       | 0.00              | "                        |
|                    | + 0.02            | S                        |                     | + 0.03            | "                        |                      | - 0.01            | "                        |                       | - 0.12            | "                        | 2853                 | + 0.03            | "                        |                       | - 0.06            | "                        |
|                    | - 0.04            | "                        |                     | + 0.23            | "                        | 1986                 | - 0.04            | N                        | 2029                  | + 0.09            | S                        |                      | + 0.07            | "                        |                       | - 0.02            | "                        |
|                    | - 0.04            | "                        |                     | + 0.06            | "                        |                      | + 0.08            | "                        |                       | + 0.07            | "                        |                      | + 0.04            | "                        |                       | + 0.02            | "                        |
|                    | + 0.04            | "                        | 1837                | - 0.01            | N                        |                      | + 0.07            | "                        |                       | + 0.12            | "                        |                      | + 0.08            | "                        |                       | + 0.07            | "                        |
|                    | - 0.07            | "                        | 1975                | - 0.05            | "                        |                      | + 0.06            | "                        |                       | + 0.04            | "                        |                      | + 0.05            | "                        |                       | + 0.05            | "                        |
|                    | - 0.02            | "                        |                     | - 0.03            | "                        |                      | + 0.11            | "                        |                       | + 0.10            | "                        |                      | + 0.07            | "                        |                       | + 0.07            | "                        |
|                    | + 0.03            | "                        |                     | - 0.05            | "                        |                      | 0.00              | "                        |                       | + 0.07            | "                        |                      | + 0.07            | "                        |                       | + 0.07            | "                        |
| 2080               | + 0.03            | N                        |                     | + 0.05            | "                        |                      | + 0.03            | "                        |                       | + 0.06            | "                        |                      | + 0.03            | "                        |                       | + 0.03            | "                        |
|                    | + 0.01            | "                        |                     | - 0.05            | "                        |                      | + 0.08            | "                        | 2235                  | - 0.06            | N                        | 2899                 | - 0.05            | S                        |                       | - 0.02            | "                        |
|                    | + 0.04            | "                        | 2002                | + 0.06            | S                        | 2173                 | - 0.04            | S                        |                       | - 0.13            | "                        |                      | - 0.02            | "                        |                       | - 0.03            | "                        |
|                    | + 0.01            | "                        |                     | + 0.06            | "                        |                      | - 0.03            | "                        |                       | - 0.07            | "                        |                      | - 0.03            | "                        |                       | - 0.03            | "                        |
|                    | + 0.09            | "                        |                     | + 0.15            | "                        |                      | - 0.02            | "                        |                       | - 0.05            | "                        |                      | - 0.06            | "                        |                       | - 0.04            | "                        |
|                    | + 0.01            | "                        |                     | + 0.15            | "                        |                      | - 0.04            | "                        |                       | - 0.13            | "                        |                      | - 0.06            | "                        |                       | - 0.09            | "                        |
|                    | + 0.11            | "                        |                     | + 0.16            | "                        |                      | + 0.01            | "                        |                       | - 0.09            | "                        |                      | - 0.04            | "                        |                       | + 0.04            | "                        |
|                    |                   |                          |                     | + 0.08            | "                        |                      | - 0.03            | "                        |                       | - 0.11            | "                        |                      | - 0.09            | "                        |                       | + 0.04            | "                        |
| Mean               | + 0.013           |                          |                     | + 0.06            | "                        | Mean                 | + 0.031           |                          |                       | - 0.03            | "                        | 3171                 | + 0.04            | N                        |                       |                   |                          |
|                    | ± 0.005           |                          | 2047                | + 0.14            | "                        |                      | ± 0.005           |                          | 2313                  | - 0.10            | "                        | Mean                 | + 0.019           |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.12            | "                        |                      |                   |                          |                       | - 0.05            | "                        |                      | ± 0.006           |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.13            | "                        |                      |                   |                          |                       | - 0.03            | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.05            | "                        |                      |                   |                          |                       | - 0.12            | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | 0.00              | "                        |                      |                   |                          |                       | 0.00              | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          | 2038                | - 0.03            | "                        |                      |                   |                          |                       | - 0.05            | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.10            | "                        |                      |                   |                          |                       | - 0.03            | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.17            | "                        |                      |                   |                          |                       | - 0.12            | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | + 0.12            | "                        |                      |                   |                          |                       |                   | "                        |                      |                   |                          |                       |                   |                          |
|                    |                   |                          | Mean                | + 0.041           |                          |                      |                   |                          | Mean                  | - 0.017           |                          |                      |                   |                          |                       |                   |                          |
|                    |                   |                          |                     | ± 0.007           |                          |                      |                   |                          |                       | ± 0.007           |                          |                      |                   |                          |                       |                   |                          |

NOTE.—The symbol, N - S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.

*Of Majors Strahan and Heaviside, Season 1883-84.*

| ARC PROME-AKYAB    |                   |                          |                  |                   |                          | ARC MOULMEIN-PROME  |                   |                          |                    |                   |                          | ARC MOULMEIN-AKYAB  |                   |                          |                    |                   |                          |
|--------------------|-------------------|--------------------------|------------------|-------------------|--------------------------|---------------------|-------------------|--------------------------|--------------------|-------------------|--------------------------|---------------------|-------------------|--------------------------|--------------------|-------------------|--------------------------|
| Heaviside at Prome |                   |                          | Strahan at Akvab |                   |                          | Strahan at Moulmein |                   |                          | Heaviside at Prome |                   |                          | Strahan at Moulmein |                   |                          | Heaviside at Akvab |                   |                          |
| Star               | Equation<br>N - S | Aspect first<br>observed | Star             | Equation<br>N - S | Aspect first<br>observed | Star                | Equation<br>N - S | Aspect first<br>observed | Star               | Equation<br>N - S | Aspect first<br>observed | Star                | Equation<br>N - S | Aspect first<br>observed | Star               | Equation<br>N - S | Aspect first<br>observed |
| 2659               | + 0'03            | N                        | 2632             | - 0'05            | N                        | 3693                | + 0'11            | S                        | 3522               | + 0'06            | N                        | 4031                | - 0'05            | N                        | 3990               | - 0'02            | S                        |
|                    | + 0'08            | "                        |                  | - 0'11            | "                        |                     | + 0'05            | "                        |                    | - 0'04            | "                        |                     | - 0'06            | "                        |                    | 0'00              | "                        |
|                    | + 0'03            | "                        |                  | - 0'08            | "                        |                     | + 0'05            | "                        |                    | - 0'01            | "                        |                     | - 0'03            | "                        |                    | + 0'04            | "                        |
|                    | + 0'03            | "                        |                  | + 0'07            | "                        |                     | + 0'04            | "                        |                    | + 0'03            | "                        |                     | - 0'05            | "                        |                    | + 0'02            | "                        |
| 2759               | + 0'03            | S                        | 2899             | + 0'05            | S                        |                     | + 0'03            | "                        |                    | + 0'05            | "                        |                     | - 0'07            | "                        |                    | - 0'02            | "                        |
|                    | + 0'00            | "                        |                  | + 0'03            | "                        |                     | + 0'03            | "                        |                    | + 0'04            | "                        | 4615                | + 0'11            | S                        | 4066               | + 0'02            | "                        |
|                    | + 0'02            | "                        |                  | + 0'08            | "                        |                     | + 0'09            | "                        | 3643               | + 0'17            | "                        |                     | + 0'11            | "                        |                    | + 0'01            | "                        |
|                    | - 0'05            | "                        | 2937             | - 0'12            | N                        |                     | + 0'08            | "                        | 3776               | + 0'04            | "                        |                     | + 0'13            | "                        |                    | - 0'03            | "                        |
| 2853               | + 0'04            | "                        |                  | - 0'12            | "                        | 3824                | + 0'02            | N                        |                    | + 0'03            | "                        |                     | + 0'05            | "                        |                    | + 0'05            | "                        |
|                    | + 0'03            | "                        |                  | - 0'04            | "                        |                     | - 0'02            | "                        |                    | + 0'01            | "                        |                     | + 0'03            | "                        | 4260               | + 0'08            | N                        |
|                    | - 0'04            | "                        |                  | - 0'11            | "                        |                     | - 0'04            | "                        |                    | + 0'07            | "                        | 4847                | - 0'06            | N                        |                    | + 0'10            | "                        |
|                    | - 0'08            | "                        | 2953             | - 0'02            | S                        |                     | - 0'03            | "                        |                    | + 0'02            | "                        |                     | - 0'04            | "                        |                    | + 0'01            | "                        |
| 2953               | + 0'07            | N                        |                  | + 0'02            | "                        |                     | - 0'02            | "                        |                    | + 0'08            | "                        |                     | + 0'03            | "                        |                    | + 0'18            | "                        |
|                    | + 0'07            | "                        |                  | + 0'03            | "                        |                     | - 0'02            | "                        | 3838               | - 0'01            | S                        |                     | - 0'07            | "                        |                    | + 0'09            | "                        |
|                    | + 0'08            | "                        |                  | + 0'12            | "                        |                     | - 0'06            | "                        |                    | - 0'02            | "                        |                     | - 0'14            | "                        |                    | + 0'07            | "                        |
|                    | + 0'10            | "                        | 3343             | - 0'09            | N                        |                     | - 0'02            | "                        |                    | + 0'02            | "                        |                     | - 0'12            | "                        | 4328               | 0'00              | "                        |
| 3278               | - 0'05            | S                        |                  | - 0'08            | "                        | 3838                | + 0'07            | S                        |                    | - 0'02            | "                        | 4926                | + 0'05            | S                        |                    | + 0'11            | "                        |
|                    | - 0'03            | "                        |                  | - 0'04            | "                        |                     | + 0'13            | "                        |                    | + 0'07            | "                        |                     | - 0'04            | "                        |                    | + 0'03            | "                        |
|                    | + 0'01            | "                        |                  | - 0'01            | "                        |                     | + 0'08            | "                        |                    | - 0'07            | "                        |                     | + 0'07            | "                        |                    | + 0'15            | "                        |
| 3453               | + 0'05            | N                        | 3522             | + 0'05            | "                        |                     | + 0'01            | "                        |                    | 0'00              | "                        |                     | + 0'05            | "                        |                    | + 0'09            | "                        |
|                    | - 0'01            | "                        |                  | - 0'02            | S                        |                     | + 0'17            | "                        |                    | + 0'01            | "                        |                     | + 0'02            | "                        |                    | + 0'11            | "                        |
|                    | + 0'10            | "                        |                  | + 0'03            | "                        |                     | + 0'12            | "                        | 3869               | - 0'06            | "                        | Mean                | - 0'004           |                          |                    | + 0'03            | "                        |
|                    | - 0'02            | "                        |                  | - 0'02            | "                        |                     | + 0'11            | "                        |                    | - 0'02            | "                        |                     | ± 0'011           |                          | 4664               | + 0'07            | "                        |
| Mean               | + 0'021           |                          | Mean             | - 0'019           |                          | 4031                | + 0'10            | "                        |                    | - 0'02            | "                        |                     |                   |                          |                    | + 0'05            | "                        |
|                    | ± 0'007           |                          |                  | ± 0'010           |                          |                     | - 0'03            | N                        |                    | + 0'03            | "                        |                     |                   |                          |                    | - 0'08            | "                        |
|                    |                   |                          |                  |                   |                          |                     | - 0'05            | "                        |                    | + 0'05            | "                        |                     |                   |                          |                    | + 0'06            | "                        |
|                    |                   |                          |                  |                   |                          |                     | - 0'07            | "                        |                    | + 0'02            | "                        |                     |                   |                          |                    | + 0'01            | "                        |
|                    |                   |                          |                  |                   |                          |                     | - 0'08            | "                        |                    | 0'00              | "                        |                     |                   |                          | Mean               | + 0'046           |                          |
|                    |                   |                          |                  |                   |                          |                     | - 0'05            | "                        | 4031               | - 0'03            | "                        |                     |                   |                          |                    | ± 0'008           |                          |
|                    |                   |                          |                  |                   |                          |                     | - 0'06            | "                        |                    | + 0'05            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          | Mean                | + 0'025           |                          |                    | - 0'02            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     | ± 0'009           |                          |                    | - 0'02            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | + 0'05            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | 0'00              | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          | 4110               | + 0'06            | N                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | + 0'03            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | + 0'10            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | + 0'06            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | + 0'05            | "                        |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          | Mean               | + 0'022           |                          |                     |                   |                          |                    |                   |                          |
|                    |                   |                          |                  |                   |                          |                     |                   |                          |                    | ± 0'005           |                          |                     |                   |                          |                    |                   |                          |

NOTE.—The symbol, N - S, signifies a quantity which must be added to the times observed for Stars of South Aspect, before they can be compared with those for Stars of North Aspect, by the same observer.



TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 38', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|--------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------|----------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                          | Correction for Rate of<br>W Clock | Corrs. for Pers. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0.013<br>S <sub>N</sub> - S <sub>S</sub> = + 0.041 | M <sub>N</sub> |
|                                                                                                                                                                     | B.A.O.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group      |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
| 1883                                                                                                                                                                |                  |             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                          |                                   |                                                                                                                      |                |
| Nov. 27                                                                                                                                                             | 1367             | + 22 33     | N                                                                   | <i>I. P. E.</i>                                                 | 4 19 14.46               | + 1.78                   | 16.24                                | N                                                                 | <i>I. P. E.</i>                                                 | 4 19 25.62               | + 1.42                   | 27.04                                | + 0 10.80                                   |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | <i>d</i>                                                        |                          |                          |                                      |                                                                   | <i>d</i>                                                        |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1370             | + 18 55     | S                                                                   | <i>c - 2.3</i>                                                  | 21 42.95                 | + 1.79                   | 44.74                                | S                                                                 | <i>c + 1.5</i>                                                  | 21 54.17                 | + 1.38                   | 55.55                                | 10.81                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1417             | + 19 38     | S                                                                   | <i>b + 0.6</i><br><i>a - 2.2</i>                                | 28 47.05                 | + 1.79                   | 48.84                                | S                                                                 | <i>b - 2.1</i><br><i>a - 28.9</i>                               | 28 58.15                 | + 1.39                   | 59.54                                | 10.70                                       | <i>m s</i><br>+ 0 10.770 | +                                 | 0.080                                                                                                                | + 0 10.869     |
|                                                                                                                                                                     |                  |             |                                                                     | <i>s</i><br><i>Q + 1.83</i>                                     |                          |                          |                                      |                                                                   | <i>s</i><br><i>Q + 1.43</i>                                     |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                            | 4 23 15                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
| Nov. 27                                                                                                                                                             | 1449             | + 22 44     | N                                                                   | <i>I. P. E.</i>                                                 | 4 35 13.04               | - 1.88                   | 11.16                                | N                                                                 | <i>I. P. E.</i>                                                 | 4 35 23.41               | - 1.44                   | 21.97                                | + 0 10.81                                   |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | <i>d</i>                                                        |                          |                          |                                      |                                                                   | <i>d</i>                                                        |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1520             | + 32 59     | N                                                                   | <i>c - 2.3</i>                                                  | 49 22.66                 | - 1.86                   | 20.80                                | N                                                                 | <i>c + 1.5</i>                                                  | 49 32.84                 | - 1.31                   | 31.53                                | 10.73                                       | <i>m s</i><br>+ 0 10.810 | +                                 | 0.080                                                                                                                | + 0 10.904     |
|                                                                                                                                                                     | 1400             | + 10 56     | S                                                                   | <i>b + 0.6</i><br><i>a - 2.2</i>                                | 37 55.92                 | - 1.88                   | 54.04                                | S                                                                 | <i>b - 2.1</i><br><i>a - 28.9</i>                               | 38 6.46                  | - 1.58                   | 4.88                                 | 10.84                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1401             | + 8 42      | S                                                                   | <i>s</i><br><i>Q - 1.83</i>                                     | 44 13.26                 | - 1.88                   | 11.38                                | S                                                                 | <i>s</i><br><i>Q - 1.43</i>                                     | 44 23.85                 | - 1.61                   | 22.24                                | 10.86                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                            | 4 41 41                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
| Dec. 8                                                                                                                                                              | 1637             | + 21 58     | N                                                                   | <i>I. P. W.</i>                                                 | 5 12 13.93               | + 1.77                   | 15.70                                | N                                                                 | <i>I. P. E.</i>                                                 | 5 12 31.73               | + 1.68                   | 33.41                                | + 0 17.71                                   |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | <i>d</i>                                                        |                          |                          |                                      |                                                                   | <i>d</i>                                                        |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1640             | + 29 27     | N                                                                   | <i>c - 0.7</i>                                                  | 13 45.55                 | + 1.74                   | 47.29                                | N                                                                 | <i>c + 2.1</i>                                                  | 14 3.11                  | + 1.99                   | 5.10                                 | 17.81                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1658             | + 28 49     | N                                                                   | <i>b - 1.4</i><br><i>a + 4.5</i>                                | 15 57.67                 | + 1.74                   | 59.41                                | N                                                                 | <i>b + 4.8</i><br><i>a - 92.1</i>                               | 16 15.19                 | + 1.96                   | 17.15                                | 17.74                                       | <i>m s</i><br>+ 0 17.706 | 0.014                             | 0.012                                                                                                                | + 0 17.704     |
|                                                                                                                                                                     | 1681             | + 28 30     | N                                                                   | <i>s</i><br><i>Q + 1.82</i>                                     | 18 53.22                 | + 1.74                   | 54.96                                | N                                                                 | <i>s</i><br><i>Q + 1.53</i>                                     | 19 10.63                 | + 1.95                   | 12.58                                | 17.62                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1637             | + 21 58     | S                                                                   |                                                                 | 12 13.94                 | + 1.77                   | 15.71                                | S                                                                 |                                                                 | 12 31.72                 | + 1.68                   | 33.40                                | 17.69                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1671             | + 17 16     | S                                                                   |                                                                 | 17 34.70                 | + 1.78                   | 36.48                                | S                                                                 |                                                                 | 17 52.67                 | + 1.49                   | 54.16                                | 17.68                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     | 1692             | + 17 51     | S                                                                   |                                                                 | 20 19.48                 | + 1.77                   | 21.25                                | S                                                                 |                                                                 | 20 37.43                 | + 1.51                   | 38.94                                | 17.69                                       |                          |                                   |                                                                                                                      |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                            | 5 15 51                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                          |                                   |                                                                                                                      |                |

NOTE.—1<sup>d</sup> = 0.0325. Transcribing Equation 261, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |             |                                                                     |                                                                   |                          |                          |                                      |                                                                   |                                                                    |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                               |                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                   |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                    |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>.013</sup><br>S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>.041</sup> | M <sub>N</sub> |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants   | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants    | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                               |                |
| 1883<br>Dec. 8                                                                                                                                                      | 1742             | + 23 57     | N                                                                   | I. P. W.<br><i>d</i>                                              | 5 28 21 <sup>.15</sup>   | -1 <sup>.88</sup>        | 19 <sup>.27</sup>                    | N                                                                 | I. P. E.<br><i>d</i>                                               | 5 28 38 <sup>.40</sup>   | -1 <sup>.30</sup>        | 37 <sup>.10</sup>                    | + 0 17 <sup>.83</sup>                       |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1778             | + 25 50     | N                                                                   | c - 0 <sup>.7</sup><br>b - 1 <sup>.4</sup><br>a + 4 <sup>.5</sup> | 32 32 <sup>.06</sup>     | -1 <sup>.88</sup>        | 30 <sup>.18</sup>                    | N                                                                 | c + 2 <sup>.1</sup><br>b + 4 <sup>.8</sup><br>a - 92 <sup>.1</sup> | 32 49 <sup>.14</sup>     | -1 <sup>.22</sup>        | 47 <sup>.92</sup>                    | 17 <sup>.74</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1722             | + 5 51      | S                                                                   | <i>s</i>                                                          | 24 33 <sup>.50</sup>     | -1 <sup>.84</sup>        | 31 <sup>.66</sup>                    | S                                                                 | <i>s</i>                                                           | 24 51 <sup>.38</sup>     | -1 <sup>.98</sup>        | 49 <sup>.40</sup>                    | 17 <sup>.74</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1733             | + 20 23     | S                                                                   | Q -1 <sup>.82</sup>                                               | 26 44 <sup>.16</sup>     | -1 <sup>.87</sup>        | 42 <sup>.29</sup>                    | S                                                                 | Q -1 <sup>.53</sup>                                                | 27 1 <sup>.56</sup>      | -1 <sup>.44</sup>        | 0 <sup>.12</sup>                     | 17 <sup>.83</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1764             | + 16 58     | S                                                                   |                                                                   | 30 18 <sup>.78</sup>     | -1 <sup>.86</sup>        | 16 <sup>.92</sup>                    | S                                                                 |                                                                    | 30 36 <sup>.31</sup>     | -1 <sup>.58</sup>        | 34 <sup>.73</sup>                    | 17 <sup>.81</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1792             | + 16 28     | S                                                                   |                                                                   | 34 34 <sup>.45</sup>     | -1 <sup>.86</sup>        | 32 <sup>.59</sup>                    | S                                                                 |                                                                    | 34 51 <sup>.97</sup>     | -1 <sup>.60</sup>        | 50 <sup>.37</sup>                    | 17 <sup>.78</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                              | 5 29 31                  |                          |                                      |                                                                   |                                                                    |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                               |                |
| Dec. 9                                                                                                                                                              | 1637             | + 21 58     | N                                                                   | I. P. W.<br><i>d</i>                                              | 5 12 14 <sup>.17</sup>   | +1 <sup>.75</sup>        | 15 <sup>.92</sup>                    | N                                                                 | I. P. W.<br><i>d</i>                                               | 5 12 32 <sup>.81</sup>   | +1 <sup>.39</sup>        | 34 <sup>.20</sup>                    | + 0 18 <sup>.28</sup>                       |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1649             | + 29 27     | N                                                                   | c + 0 <sup>.4</sup><br>b - 2 <sup>.9</sup><br>a + 9 <sup>.0</sup> | 13 45 <sup>.90</sup>     | +1 <sup>.72</sup>        | 47 <sup>.62</sup>                    | N                                                                 | c - 7 <sup>.5</sup><br>b + 2 <sup>.5</sup><br>a - 82 <sup>.3</sup> | 14 4 <sup>.35</sup>      | +1 <sup>.65</sup>        | 6 <sup>.00</sup>                     | 18 <sup>.38</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1658             | + 28 49     | N                                                                   | <i>s</i>                                                          | 15 58 <sup>.03</sup>     | +1 <sup>.72</sup>        | 59 <sup>.75</sup>                    | N                                                                 | <i>s</i>                                                           | 16 16 <sup>.34</sup>     | +1 <sup>.62</sup>        | 17 <sup>.96</sup>                    | 18 <sup>.21</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1681             | + 28 30     | N                                                                   | Q +1 <sup>.82</sup>                                               | 18 53 <sup>.46</sup>     | +1 <sup>.73</sup>        | 55 <sup>.19</sup>                    | N                                                                 | Q +1 <sup>.53</sup>                                                | 19 11 <sup>.89</sup>     | +1 <sup>.61</sup>        | 13 <sup>.50</sup>                    | 18 <sup>.31</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1637             | + 21 58     | S                                                                   |                                                                   | 12 14 <sup>.12</sup>     | +1 <sup>.75</sup>        | 15 <sup>.87</sup>                    | S                                                                 |                                                                    | 12 32 <sup>.84</sup>     | +1 <sup>.39</sup>        | 34 <sup>.23</sup>                    | 18 <sup>.36</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1671             | + 17 16     | S                                                                   |                                                                   | 17 34 <sup>.87</sup>     | +1 <sup>.77</sup>        | 36 <sup>.64</sup>                    | S                                                                 |                                                                    | 17 53 <sup>.79</sup>     | +1 <sup>.23</sup>        | 55 <sup>.02</sup>                    | 18 <sup>.38</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1692             | + 17 51     | S                                                                   |                                                                   | 20 19 <sup>.71</sup>     | +1 <sup>.77</sup>        | 21 <sup>.48</sup>                    | S                                                                 |                                                                    | 20 38 <sup>.50</sup>     | +1 <sup>.25</sup>        | 39 <sup>.75</sup>                    | 18 <sup>.27</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                              | 5 15 51                  |                          |                                      |                                                                   |                                                                    |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                               |                |
| Dec. 9                                                                                                                                                              | 1742             | + 23 57     | N                                                                   | I. P. W.<br><i>d</i>                                              | 5 28 21 <sup>.49</sup>   | -1 <sup>.90</sup>        | 19 <sup>.59</sup>                    | N                                                                 | I. P. W.<br><i>d</i>                                               | 5 28 39 <sup>.48</sup>   | -1 <sup>.61</sup>        | 37 <sup>.87</sup>                    | + 0 18 <sup>.28</sup>                       |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1778             | + 25 50     | N                                                                   | c + 0 <sup>.4</sup><br>b - 2 <sup>.9</sup><br>a + 9 <sup>.0</sup> | 32 32 <sup>.35</sup>     | -1 <sup>.90</sup>        | 30 <sup>.45</sup>                    | N                                                                 | c - 7 <sup>.5</sup><br>b + 2 <sup>.5</sup><br>a - 82 <sup>.3</sup> | 32 50 <sup>.23</sup>     | -1 <sup>.54</sup>        | 48 <sup>.69</sup>                    | 18 <sup>.24</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1722             | + 5 51      | S                                                                   | <i>s</i>                                                          | 24 33 <sup>.79</sup>     | -1 <sup>.82</sup>        | 31 <sup>.97</sup>                    | S                                                                 | <i>s</i>                                                           | 24 52 <sup>.41</sup>     | -2 <sup>.18</sup>        | 50 <sup>.23</sup>                    | 18 <sup>.26</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1733             | + 20 23     | S                                                                   | Q -1 <sup>.82</sup>                                               | 26 44 <sup>.49</sup>     | -1 <sup>.88</sup>        | 42 <sup>.61</sup>                    | S                                                                 | Q -1 <sup>.53</sup>                                                | 27 2 <sup>.55</sup>      | -1 <sup>.72</sup>        | 0 <sup>.83</sup>                     | 18 <sup>.22</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1764             | + 16 58     | S                                                                   |                                                                   | 30 19 <sup>.13</sup>     | -1 <sup>.87</sup>        | 17 <sup>.26</sup>                    | S                                                                 |                                                                    | 30 37 <sup>.39</sup>     | -1 <sup>.83</sup>        | 35 <sup>.56</sup>                    | 18 <sup>.30</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     | 1792             | + 16 28     | S                                                                   |                                                                   | 34 34 <sup>.75</sup>     | -1 <sup>.87</sup>        | 32 <sup>.88</sup>                    | S                                                                 |                                                                    | 34 52 <sup>.98</sup>     | -1 <sup>.85</sup>        | 51 <sup>.13</sup>                    | 18 <sup>.25</sup>                           |                     |                                   |                                                                                                                                               |                |
|                                                                                                                                                                     |                  |             |                                                                     | Mean, T <sub>E</sub>                                              | 5 29 31                  |                          |                                      |                                                                   |                                                                    |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                               |                |

NOTE.— $1^d = 0.0225$ . Transcribing Equation  $\pi$ !; all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 38 <sup>s</sup> . |               |             |                                    |                                                    |                    |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|----------------------------------------------------|--------------------|------------------|---------------------------|----------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|--------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E             |                                                    |                    |                  |                           | TRANSITS OBSERVED AT W           |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0.013$<br>$S_N - S_S = +0.041$<br>$M_N$ |
|                                                                                                                                                                     |               |             | By Heaviside, with Telescope No. 1 |                                                    |                    |                  |                           | By Strahan, with Telescope No. 2 |                                                     |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                                      |
|                                                                                                                                                                     | B.A.C. Number | Declination | Star's Aspect                      | In-strumental Position and Correction Constants    | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                    | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                |                                                                                      |
| 1883                                                                                                                                                                |               | ° '         |                                    |                                                    | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                  |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                      |
| Dec.10                                                                                                                                                              | 1637          | + 21 58     | N                                  | <i>I. P. E.</i>                                    | 5 12 14.62         | +1.61            | 16.23                     | N                                | <i>I. P. W.</i>                                     | 5 12 33.71         | +1.47            | 35.18                     | +0 18.95                              |               |                                |                                                                                      |
|                                                                                                                                                                     | 1640          | + 29 27     | N                                  | <i>d</i>                                           | 13 46.38           | +1.60            | 47.98                     | N                                | <i>d</i>                                            | 14 5.08            | +1.72            | 6.80                      | 18.82                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1658          | + 28 49     | N                                  | <i>b - 4.5</i><br><i>a - 3.5</i><br><i>a - 1.0</i> | 15 58.45           | +1.60            | 60.05                     | N                                | <i>b + 1.4</i><br><i>b + 1.7</i><br><i>a - 75.9</i> | 16 17.13           | +1.69            | 18.82                     | 18.77                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1681          | + 28 30     | N                                  | <i>s</i>                                           | 18 53.89           | +1.60            | 55.49                     | N                                | <i>s</i>                                            | 19 12.54           | +1.68            | 14.22                     | 18.73                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1637          | + 21 58     | S                                  | <i>Q + 1.81</i>                                    | 12 14.62           | +1.61            | 16.23                     | S                                | <i>Q + 1.48</i>                                     | 12 33.59           | +1.47            | 35.06                     | 18.83                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1671          | + 17 16     | S                                  |                                                    | 17 35.43           | +1.62            | 37.05                     | S                                |                                                     | 17 54.49           | +1.32            | 55.81                     | 18.76                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1692          | + 17 51     | S                                  |                                                    | 20 20.20           | +1.62            | 21.82                     | S                                |                                                     | 20 39.37           | +1.34            | 40.71                     | 18.89                                 |               |                                |                                                                                      |
|                                                                                                                                                                     |               |             |                                    | Mean, $T_E$                                        | 5 15 52            |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                      |
| Dec.10                                                                                                                                                              | 1742          | + 23 57     | N                                  | <i>I. P. E.</i>                                    | 5 28 21.81         | -2.01            | 19.80                     | N                                | <i>I. P. W.</i>                                     | 5 28 40.19         | -1.42            | 38.77                     | +0 18.97                              |               |                                |                                                                                      |
|                                                                                                                                                                     | 1778          | + 25 50     | N                                  | <i>d</i>                                           | 32 32.75           | -2.01            | 30.74                     | N                                | <i>d</i>                                            | 32 50.99           | -1.36            | 49.63                     | 18.89                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1722          | + 5 51      | S                                  | <i>b - 4.5</i><br><i>b - 3.5</i><br><i>a - 1.0</i> | 24 34.22           | -2.00            | 32.22                     | S                                | <i>b + 1.7</i><br><i>a - 75.9</i>                   | 24 53.06           | -1.96            | 51.10                     | 18.88                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1733          | + 20 23     | S                                  | <i>s</i>                                           | 26 44.90           | -2.00            | 42.90                     | S                                | <i>s</i>                                            | 27 3.26            | -1.54            | 1.72                      | 18.82                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1764          | + 16 58     | S                                  | <i>Q - 1.81</i>                                    | 30 19.47           | -1.99            | 17.48                     | S                                | <i>Q - 1.48</i>                                     | 30 38.00           | -1.64            | 36.36                     | 18.88                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1792          | + 16 28     | S                                  |                                                    | 34 35.12           | -1.99            | 33.13                     | S                                |                                                     | 34 53.66           | -1.66            | 52.00                     | 18.87                                 |               |                                |                                                                                      |
|                                                                                                                                                                     |               |             |                                    | Mean, $T_E$                                        | 5 29 31            |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                      |
| Dec.11                                                                                                                                                              | 1637          | + 21 58     | N                                  | <i>I. P. E.</i>                                    | 5 12 14.78         | +1.74            | 16.52                     | N                                | <i>I. P. E.</i>                                     | 5 12 34.11         | +1.56            | 35.67                     | +0 19.15                              |               |                                |                                                                                      |
|                                                                                                                                                                     | 1640          | + 29 27     | N                                  | <i>d</i>                                           | 13 46.47           | +1.75            | 48.22                     | N                                | <i>d</i>                                            | 14 5.53            | +1.88            | 7.41                      | 19.19                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1658          | + 28 49     | N                                  | <i>b - 4.5</i><br><i>b + 0.3</i><br><i>a - 4.6</i> | 15 58.52           | +1.75            | 60.27                     | N                                | <i>b - 1.9</i><br><i>b + 6.7</i><br><i>a - 94.1</i> | 16 17.69           | +1.85            | 19.54                     | 19.27                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1681          | + 28 30     | N                                  | <i>s</i>                                           | 18 54.01           | +1.75            | 55.76                     | N                                | <i>s</i>                                            | 19 12.97           | +1.84            | 14.81                     | 19.05                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1637          | + 21 58     | S                                  | <i>Q + 1.84</i>                                    | 12 14.80           | +1.74            | 16.54                     | S                                | <i>Q + 1.47</i>                                     | 12 34.01           | +1.56            | 35.57                     | 19.03                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1671          | + 17 16     | S                                  |                                                    | 17 35.54           | +1.73            | 37.27                     | S                                |                                                     | 17 55.07           | +1.38            | 56.45                     | 19.18                                 |               |                                |                                                                                      |
|                                                                                                                                                                     | 1692          | + 17 51     | S                                  |                                                    | 20 20.34           | +1.74            | 22.08                     | S                                |                                                     | 20 39.85           | +1.40            | 41.25                     | 19.17                                 |               |                                |                                                                                      |
|                                                                                                                                                                     |               |             |                                    | Mean, $T_E$                                        | 5 15 52            |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> ; AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |      |         |                                                              |                                                    |                    |                  |                            |                                                            |                                                     |                    |                  |                            |                                             |               |                                   |                                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|--------------------------------------------------------------|----------------------------------------------------|--------------------|------------------|----------------------------|------------------------------------------------------------|-----------------------------------------------------|--------------------|------------------|----------------------------|---------------------------------------------|---------------|-----------------------------------|--------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                                                                   | STAR |         | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                    |                    |                  |                            | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                     |                    |                  |                            | Difference of<br>Corrected Times<br>(W - E) |               | Correction for Rate of<br>W Clock | Corrs. for Peril. Equations<br>$H_N - H_S = + 0^s.013$<br>$S_N - S_S = + 0^s.041$<br>$M_N$ |
|                                                                                                                                                                     |      |         | Star's Aspect                                                | In-strumental Position and Correction Constants    | Mean Observed Time | Total Correction | Seconds of Correction Time | Star's Aspect                                              | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Correction Time | By each Star                                | Mean of Group |                                   |                                                                                            |
| 1883                                                                                                                                                                |      | ° '     |                                                              |                                                    | <i>h m s</i>       | <i>s</i>         | <i>s</i>                   |                                                            |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                   | <i>m s</i>                                  |               |                                   |                                                                                            |
| Dec. 11                                                                                                                                                             | 1742 | + 23 57 | N                                                            | <i>I. P. E.</i>                                    | 5 28 22.08         | -1.93            | 20.15                      | N                                                          | <i>I. P. E.</i>                                     | 5 28 40.69         | -1.30            | 39.39                      | + 0 19.24                                   |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1778 | + 25 50 | N                                                            | <i>d</i>                                           | 32 33.01           | -1.93            | 31.08                      | N                                                          | <i>d</i>                                            | 32 51.46           | -1.21            | 50.25                      | 19.17                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1722 | + 5 51  | S                                                            | <i>a - 4.5</i><br><i>b + 0.3</i><br><i>a - 4.6</i> | 24 34.47           | -1.96            | 32.51                      | S                                                          | <i>c - 1.9</i><br><i>b + 6.7</i><br><i>a - 94.1</i> | 24 53.73           | -1.98            | 51.75                      | 19.24                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1733 | + 20 23 | S                                                            | <i>s</i>                                           | 26 45.12           | -1.94            | 43.18                      | S                                                          | <i>s</i>                                            | 27 3.80            | -1.44            | 2.36                       | 19.18                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1764 | + 16 58 | S                                                            | <i>Q - 1.84</i>                                    | 30 19.78           | -1.94            | 17.84                      | S                                                          | <i>Q - 1.47</i>                                     | 30 38.61           | -1.57            | 37.04                      | 19.20                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1792 | + 16 28 | S                                                            |                                                    | 34 35.39           | -1.94            | 33.45                      | S                                                          |                                                     | 34 54.22           | -1.59            | 52.63                      | 19.18                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     |      |         |                                                              | Mean, $T_E$                                        | 5 29 32            |                  |                            |                                                            |                                                     |                    |                  |                            |                                             |               |                                   |                                                                                            |
| Dec. 12                                                                                                                                                             | 1637 | + 21 58 | N                                                            | <i>I. P. W.</i>                                    | 5 12 15.01         | + 2.01           | 17.02                      | N                                                          | <i>I. P. E.</i>                                     | 5 12 34.25         | + 1.35           | 35.60                      | + 0 18.58                                   |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1649 | + 29 27 | N                                                            | <i>d</i>                                           | 13 46.73           | + 2.04           | 48.77                      | N                                                          | <i>d</i>                                            | 14 5.66            | + 1.67           | 7.33                       | 18.56                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1658 | + 28 49 | N                                                            | <i>c + 3.3</i><br><i>b + 3.4</i><br><i>a - 1.6</i> | 15 58.81           | + 2.03           | 60.84                      | N                                                          | <i>c - 1.2</i><br><i>b - 3.2</i><br><i>a - 95.4</i> | 16 17.79           | + 1.64           | 19.43                      | 18.59                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1681 | + 28 30 | N                                                            | <i>s</i>                                           | 18 54.20           | + 2.03           | 56.23                      | N                                                          | <i>s</i>                                            | 19 13.16           | + 1.63           | 14.79                      | 18.56                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1637 | + 21 58 | S                                                            | <i>Q + 1.85</i>                                    | 12 15.00           | + 2.01           | 17.01                      | S                                                          | <i>Q + 1.48</i>                                     | 12 34.26           | + 1.35           | 35.61                      | 18.60                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1671 | + 17 16 | S                                                            |                                                    | 17 35.84           | + 2.01           | 37.85                      | S                                                          |                                                     | 17 55.24           | + 1.17           | 56.41                      | 18.56                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1692 | + 17 51 | S                                                            |                                                    | 20 20.66           | + 2.01           | 22.67                      | S                                                          |                                                     | 20 40.03           | + 1.18           | 41.21                      | 18.54                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     |      |         |                                                              | Mean, $T_E$                                        | 5 15 52            |                  |                            |                                                            |                                                     |                    |                  |                            |                                             |               |                                   |                                                                                            |
| Dec. 12                                                                                                                                                             | 1742 | + 23 57 | N                                                            | <i>I. P. W.</i>                                    | 5 28 22.31         | -1.69            | 20.62                      | N                                                          | <i>I. P. E.</i>                                     | 5 28 40.96         | -1.53            | 39.43                      | + 0 18.81                                   |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1778 | + 25 50 | N                                                            | <i>d</i>                                           | 32 33.16           | -1.69            | 31.47                      | N                                                          | <i>d</i>                                            | 32 51.65           | -1.45            | 50.20                      | 18.73                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1722 | + 5 51  | S                                                            | <i>a + 3.3</i><br><i>b + 3.4</i><br><i>a - 1.6</i> | 24 34.70           | -1.72            | 32.98                      | S                                                          | <i>c - 1.2</i><br><i>b - 3.2</i><br><i>a - 95.4</i> | 24 53.94           | -2.20            | 51.74                      | 18.76                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1733 | + 20 23 | S                                                            | <i>s</i>                                           | 26 45.36           | -1.69            | 43.67                      | S                                                          | <i>s</i>                                            | 27 4.01            | -1.68            | 2.33                       | 18.66                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1764 | + 16 58 | S                                                            | <i>Q - 1.85</i>                                    | 30 20.00           | -1.69            | 18.31                      | S                                                          | <i>Q - 1.48</i>                                     | 30 38.77           | -1.80            | 36.97                      | 18.66                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     | 1792 | + 16 28 | S                                                            |                                                    | 34 35.63           | -1.69            | 33.94                      | S                                                          |                                                     | 34 54.52           | -1.82            | 52.70                      | 18.76                                       |               |                                   |                                                                                            |
|                                                                                                                                                                     |      |         |                                                              | Mean, $T_E$                                        | 5 29 32            |                  |                            |                                                            |                                                     |                    |                  |                            |                                             |               |                                   |                                                                                            |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation  $m$ , all records having been transcribed by the same person.

**TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION**

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

[illegible]

NOTE.—1<sup>d</sup> = 0<sup>o</sup>.0225. Transcribing Equation #4, all records having been transcribed by the same person.

**TABLE VIII. OBSERVATIONS OF TRANSITS WITH LOCAL CLOCKS, AND DEDUCTION**

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

[illegible]

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta I_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                   |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heavyside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013<br>S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .041 | δ I <sub>N</sub> - ρ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                   |                      |
| 1883                                                                                                                                                                |                  | °                |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                   |                      |
| Nov. 27                                                                                                                                                             | 1017             | + 33 48          | N                                                                   | <i>I. P. E.</i>                                                 | 3 11 21.26               | + 1.80                   | 23.06                                | N                                                                 | <i>I. P. E.</i>                                                 | 3 29 30.90               | + 1.56                   | 32.46                                | 18 9.40                                     |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1069             | + 22 24          | N                                                                   | <i>d</i>                                                        | 21 32.08                 | + 1.78                   | 33.86                                | N                                                                 | <i>d</i>                                                        | 39 41.99                 | + 1.42                   | 43.41                                | 9.55                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1045             | + 20 19          | S                                                                   | <i>c - 2.3</i><br><i>b + 0.6</i><br><i>a - 2.2</i>              | 15 56.99                 | + 1.78                   | 58.77                                | S                                                                 | <i>c + 1.5</i><br><i>b - 2.1</i><br><i>a - 28.9</i>             | 34 6.86                  | + 1.39                   | 8.25                                 | 9.48                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1057             | + 8 37           | S                                                                   | <i>s</i><br><i>Q + 1.83</i>                                     | 18 26.38                 | + 1.78                   | 28.16                                | S                                                                 | <i>s</i><br><i>Q + 1.43</i>                                     | 36 36.50                 | + 1.25                   | 37.75                                | 9.59                                        |                     |                                   |                                                                                                                                                   |                      |
| Nov. 27                                                                                                                                                             | 1107             | + 22 49          | N                                                                   | <i>I. P. E.</i>                                                 | 3 30 4.82                | - 1.88                   | 2.94                                 | N                                                                 | <i>I. P. E.</i>                                                 | 3 48 14.02               | - 1.44                   | 12.58                                | 18 9.64                                     |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1123             | + 37 12          | N                                                                   | <i>d</i>                                                        | 33 31.30                 | - 1.85                   | 29.45                                | N                                                                 | <i>d</i>                                                        | 51 40.10                 | - 1.24                   | 38.86                                | 9.41                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1100             | + 23 45          | N                                                                   | <i>c - 2.3</i><br><i>b + 0.6</i><br><i>a - 2.2</i>              | 40 31.40                 | - 1.88                   | 29.52                                | N                                                                 | <i>c + 1.5</i><br><i>b - 2.1</i><br><i>a - 28.9</i>             | 58 40.49                 | - 1.43                   | 39.06                                | 9.54                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1135             | + 19 20          | S                                                                   | <i>s</i>                                                        | 35 33.55                 | - 1.87                   | 31.68                                | S                                                                 | <i>s</i>                                                        | 53 42.65                 | - 1.48                   | 41.17                                | 9.49                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1202             | + 6 11           | S                                                                   | <i>Q - 1.83</i>                                                 | 45 44.99                 | - 1.88                   | 43.11                                | S                                                                 | <i>Q - 1.43</i>                                                 | 4 35 4.25                | - 1.63                   | 52.62                                | 9.51                                        |                     |                                   |                                                                                                                                                   |                      |
| Dec. 8                                                                                                                                                              | 1322             | + 34 17          | N                                                                   | <i>I. P. W.</i>                                                 | 4 12 48.58               | + 1.73                   | 50.31                                | N                                                                 | <i>I. P. E.</i>                                                 | 4 30 57.46               | + 2.23                   | 59.69                                | 18 9.38                                     |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1364             | + 31 10          | N                                                                   | <i>d</i>                                                        | 18 39.00                 | + 1.74                   | 40.74                                | N                                                                 | <i>d</i>                                                        | 36 48.15                 | + 2.08                   | 50.23                                | 9.49                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1371             | + 22 44          | N                                                                   | <i>c - 0.7</i><br><i>b - 1.4</i><br><i>a + 4.5</i>              | 20 16.81                 | + 1.77                   | 18.58                                | N                                                                 | <i>c + 2.1</i><br><i>b + 4.8</i><br><i>a - 92.1</i>             | 38 26.16                 | + 1.71                   | 27.87                                | 9.29                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1311             | + 20 17          | S                                                                   | <i>s</i>                                                        | 10 23.27                 | + 1.77                   | 25.04                                | S                                                                 | <i>s</i>                                                        | 28 32.81                 | + 1.62                   | 34.43                                | 9.39                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1335             | + 13 35          | S                                                                   | <i>Q + 1.82</i>                                                 | 14 16.38                 | + 1.78                   | 18.36                                | S                                                                 | <i>Q + 1.53</i>                                                 | 32 26.38                 | + 1.36                   | 27.74                                | 9.38                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1346             | + 17 16          | S                                                                   |                                                                 | 16 10.07                 | + 1.78                   | 11.85                                | S                                                                 |                                                                 | 34 19.85                 | + 1.49                   | 21.34                                | 9.49                                        |                     |                                   |                                                                                                                                                   |                      |
| Dec. 8                                                                                                                                                              | 1414             | + 41 1           | N                                                                   | <i>I. P. W.</i>                                                 | 4 28 38.94               | - 1.93                   | 37.01                                | N                                                                 | <i>I. P. E.</i>                                                 | 4 46 46.91               | - 0.46                   | 46.45                                | 18 9.44                                     |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1449             | + 22 44          | N                                                                   | <i>d</i>                                                        | 35 16.16                 | - 1.87                   | 14.29                                | N                                                                 | <i>d</i>                                                        | 53 24.96                 | - 1.35                   | 23.61                                | 9.32                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1475             | + 32 23          | N                                                                   | <i>c - 0.7</i><br><i>b - 1.4</i><br><i>a + 4.5</i>              | 41 48.33                 | - 1.91                   | 46.42                                | N                                                                 | <i>c + 2.1</i><br><i>b + 4.8</i><br><i>a - 92.1</i>             | 59 56.72                 | - 0.92                   | 55.80                                | 9.38                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1402             | + 15 36          | S                                                                   | <i>s</i>                                                        | 25 13.25                 | - 1.86                   | 11.39                                | S                                                                 | <i>s</i>                                                        | 43 22.42                 | - 1.64                   | 20.78                                | 9.39                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1434             | + 12 16          | S                                                                   | <i>Q - 1.82</i>                                                 | 31 39.35                 | - 1.86                   | 37.49                                | S                                                                 | <i>Q - 1.53</i>                                                 | 49 48.64                 | - 1.75                   | 46.89                                | 9.40                                        |                     |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1460             | + 10 56          | S                                                                   |                                                                 | 37 59.08                 | - 1.85                   | 57.23                                | S                                                                 |                                                                 | 56 8.37                  | - 1.79                   | 6.58                                 | 9.35                                        |                     |                                   |                                                                                                                                                   |                      |

NOTE.—1<sup>d</sup> = 0<sup>h</sup>0225. Transcribing Equation *nil*, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |             |                                                                    |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heavside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013<br>S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .041 | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                     | B A.C.<br>Number | Declination | Star's Aspect                                                      | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                      |
| 1883                                                                                                                                                                |                  | ° ' "       |                                                                    |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                      |
| Dec. 9                                                                                                                                                              | 1322             | + 34 17     | N                                                                  | <i>I. P. W.</i>                                                 | 4 12 48.94               | + 1.69                   | 50.63                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 30 57.76               | + 1.85                   | 59.61                                | 18 8.98                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1364             | + 31 10     | N                                                                  | <i>d</i>                                                        | 18 39.33                 | + 1.71                   | 41.04                                | N                                                                 | <i>d</i>                                                        | 36 48.40                 | + 1.73                   | 50.13                                | 9.09                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1371             | + 22 44     | N                                                                  | <i>c + 0.4</i><br><i>b - 2.9</i><br><i>a + 9.0</i>              | 20 17.01                 | + 1.75                   | 18.76                                | N                                                                 | <i>c - 7.5</i><br><i>b + 2.5</i><br><i>a - 82.3</i>             | 38 26.43                 | + 1.42                   | 27.85                                | 9.09                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1311             | + 20 17     | S                                                                  | <i>s</i><br><i>Q + 1.82</i>                                     | 10 23.68                 | + 1.76                   | 25.44                                | S                                                                 | <i>s</i><br><i>Q + 1.53</i>                                     | 28 33.01                 | + 1.34                   | 34.35                                | 8.91                                        | <i>m s</i>          |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1335             | + 13 35     | S                                                                  |                                                                 | 14 16.89                 | + 1.78                   | 18.67                                | S                                                                 |                                                                 | 32 26.57                 | + 1.12                   | 27.69                                | 9.02                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1346             | + 17 16     | S                                                                  |                                                                 | 16 10.40                 | + 1.77                   | 12.17                                | S                                                                 |                                                                 | 34 19.91                 | + 1.23                   | 21.14                                | 8.97                                        |                     |                                   |                                                                                                                                                    |                      |
| Dec. 9                                                                                                                                                              | 1414             | + 41 1      | N                                                                  | <i>I. P. W.</i>                                                 | 4 28 39.22               | - 1.99                   | 37.23                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 46 47.21               | - 0.92                   | 46.29                                | 18 9.06                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1449             | + 22 44     | N                                                                  | <i>d</i>                                                        | 35 16.36                 | - 1.89                   | 14.47                                | N                                                                 | <i>d</i>                                                        | 53 25.18                 | - 1.64                   | 23.54                                | 9.07                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1475             | + 32 23     | N                                                                  | <i>c + 0.4</i><br><i>b - 2.9</i><br><i>a + 9.0</i>              | 41 48.49                 | - 1.94                   | 46.55                                | N                                                                 | <i>c - 7.5</i><br><i>b + 2.5</i><br><i>a - 82.3</i>             | 59 57.01                 | - 1.28                   | 55.73                                | 9.18                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1402             | + 15 36     | S                                                                  | <i>s</i><br><i>Q - 1.82</i>                                     | 25 13.40                 | - 1.86                   | 11.54                                | S                                                                 | <i>s</i><br><i>Q - 1.53</i>                                     | 43 22.61                 | - 1.88                   | 20.73                                | 9.19                                        | <i>m s</i>          |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1434             | + 12 16     | S                                                                  |                                                                 | 31 39.60                 | - 1.85                   | 37.75                                | S                                                                 |                                                                 | 49 48.88                 | - 1.98                   | 46.90                                | 9.15                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1460             | + 10 56     | S                                                                  |                                                                 | 37 59.24                 | - 1.85                   | 57.39                                | S                                                                 |                                                                 | 56 8.57                  | - 2.02                   | 6.55                                 | 9.16                                        |                     |                                   |                                                                                                                                                    |                      |
| Dec. 10                                                                                                                                                             | 1322             | + 34 17     | N                                                                  | <i>I. P. E.</i>                                                 | 4 12 49.23               | + 1.61                   | 50.84                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 30 58.00               | + 1.91                   | 59.91                                | 18 9.07                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1364             | + 31 10     | N                                                                  | <i>d</i>                                                        | 18 39.68                 | + 1.61                   | 41.29                                | N                                                                 | <i>d</i>                                                        | 36 48.61                 | + 1.78                   | 50.39                                | 9.10                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1371             | + 22 44     | N                                                                  | <i>c - 4.5</i><br><i>b - 3.5</i><br><i>a - 1.0</i>              | 20 17.45                 | + 1.61                   | 19.06                                | N                                                                 | <i>c - 1.4</i><br><i>b + 1.7</i><br><i>a - 75.9</i>             | 38 26.71                 | + 1.50                   | 28.21                                | 9.15                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1311             | + 20 17     | S                                                                  | <i>s</i><br><i>Q + 1.81</i>                                     | 10 23.94                 | + 1.62                   | 25.56                                | S                                                                 | <i>s</i><br><i>Q + 1.48</i>                                     | 28 33.34                 | + 1.42                   | 34.76                                | 9.21                                        | <i>m s</i>          |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1335             | + 13 35     | S                                                                  |                                                                 | 14 17.25                 | + 1.63                   | 18.88                                | S                                                                 |                                                                 | 32 26.85                 | + 1.22                   | 28.07                                | 9.19                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1346             | + 17 16     | S                                                                  |                                                                 | 16 10.80                 | + 1.62                   | 12.42                                | S                                                                 |                                                                 | 34 20.19                 | + 1.32                   | 21.51                                | 9.09                                        |                     |                                   |                                                                                                                                                    |                      |
| Dec. 10                                                                                                                                                             | 1414             | + 41 1      | N                                                                  | <i>I. P. E.</i>                                                 | 4 28 39.65               | - 2.04                   | 37.61                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 46 47.38               | - 0.76                   | 46.62                                | 18 9.01                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1449             | + 22 44     | N                                                                  | <i>d</i>                                                        | 35 16.85                 | - 2.01                   | 14.84                                | N                                                                 | <i>d</i>                                                        | 53 25.43                 | - 1.46                   | 23.97                                | 9.13                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1475             | + 32 23     | N                                                                  | <i>c - 4.5</i><br><i>b - 3.5</i><br><i>a - 1.0</i>              | 41 48.97                 | - 2.01                   | 46.96                                | N                                                                 | <i>c - 1.4</i><br><i>b + 1.7</i><br><i>a - 75.9</i>             | 59 57.22                 | - 1.13                   | 56.09                                | 9.13                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1402             | + 15 36     | S                                                                  | <i>s</i><br><i>Q - 1.81</i>                                     | 25 13.97                 | - 1.99                   | 11.98                                | S                                                                 | <i>s</i><br><i>Q - 1.48</i>                                     | 43 22.78                 | - 1.69                   | 21.09                                | 9.11                                        | <i>m s</i>          |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1434             | + 12 16     | S                                                                  |                                                                 | 31 40.13                 | - 1.99                   | 38.14                                | S                                                                 |                                                                 | 49 49.03                 | - 1.78                   | 47.25                                | 9.11                                        |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 1460             | + 10 56     | S                                                                  |                                                                 | 37 59.82                 | - 1.99                   | 57.83                                | S                                                                 |                                                                 | 56 8.66                  | - 1.82                   | 6.84                                 | 9.01                                        |                     |                                   |                                                                                                                                                    |                      |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION  
OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |               |             |                                    |                                                          |                        |                    |                           |                                  |                                                           |                        |                    |                           |                                       |                                    |                                |                                                                                                                                               |                      |                   |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|----------------------------------------------------------|------------------------|--------------------|---------------------------|----------------------------------|-----------------------------------------------------------|------------------------|--------------------|---------------------------|---------------------------------------|------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E             |                                                          |                        |                    |                           | TRANSITS OBSERVED AT W           |                                                           |                        |                    |                           | Difference of Corrected Times (W - E) |                                    | Correction for Rate of E Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>.013</sup><br>S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>.041</sup> | δ L <sub>N</sub> - ρ |                   |                      |
|                                                                                                                                                                     |               |             | By Heaviside, with Telescope No. 1 |                                                          |                        |                    |                           | By Strahan, with Telescope No. 2 |                                                           |                        |                    |                           | By each Star                          | Mean of Group                      |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | B.A.C. Number | Declination | Star's Aspect                      | In-strumental Position and Correction Constants          | Mean Observed Time     | Total Correction   | Seconds of Corrected Time | Star's Aspect                    | In-strumental Position and Correction Constants           | Mean Observed Time     | Total Correction   | Seconds of Corrected Time |                                       |                                    |                                |                                                                                                                                               |                      |                   |                      |
| 1883                                                                                                                                                                |               | ° '         |                                    |                                                          | <i>h m s</i>           | <i>s</i>           | <i>s</i>                  |                                  |                                                           | <i>h m s</i>           | <i>s</i>           | <i>s</i>                  | <i>m s</i>                            |                                    |                                |                                                                                                                                               |                      |                   |                      |
| Dec.11                                                                                                                                                              | 1322          | + 34 17     | N                                  | <i>I. P. E.</i>                                          | 4 12 49 <sup>.49</sup> | + 1 <sup>.76</sup> | 51 <sup>.25</sup>         | N                                | <i>I. P. E.</i>                                           | 4 30 58 <sup>.54</sup> | + 2 <sup>.12</sup> | 60 <sup>.66</sup>         | 18 9 <sup>.41</sup>                   | <i>m s</i><br>18 9 <sup>.438</sup> | -                              | 0 <sup>.004</sup>                                                                                                                             | +                    | 0 <sup>.014</sup> | 18 9 <sup>.448</sup> |
|                                                                                                                                                                     | 1364          | + 31 10     | N                                  | <i>d</i><br><i>c</i> - 4 <sup>.5</sup>                   | 18 39 <sup>.92</sup>   | + 1 <sup>.75</sup> | 41 <sup>.67</sup>         | N                                | <i>d</i><br><i>c</i> - 1 <sup>.9</sup>                    | 36 49 <sup>.11</sup>   | + 1 <sup>.97</sup> | 51 <sup>.08</sup>         | 9 <sup>.41</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1371          | + 22 44     | N                                  | <i>b</i> + 0 <sup>.3</sup><br><i>a</i> - 4 <sup>.6</sup> | 20 17 <sup>.68</sup>   | + 1 <sup>.75</sup> | 19 <sup>.43</sup>         | N                                | <i>b</i> + 6 <sup>.7</sup><br><i>a</i> - 94 <sup>.1</sup> | 38 27 <sup>.23</sup>   | + 1 <sup>.59</sup> | 28 <sup>.82</sup>         | 9 <sup>.39</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1311          | + 20 17     | S                                  | <i>s</i><br><i>Q</i> + 1 <sup>.84</sup>                  | 10 24 <sup>.13</sup>   | + 1 <sup>.74</sup> | 25 <sup>.87</sup>         | S                                | <i>s</i><br><i>Q</i> + 1 <sup>.47</sup>                   | 28 33 <sup>.87</sup>   | + 1 <sup>.50</sup> | 35 <sup>.37</sup>         | 9 <sup>.50</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1335          | + 13 35     | S                                  |                                                          | 14 17 <sup>.51</sup>   | + 1 <sup>.74</sup> | 19 <sup>.25</sup>         | S                                |                                                           | 32 27 <sup>.44</sup>   | + 1 <sup>.24</sup> | 28 <sup>.68</sup>         | 9 <sup>.43</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1346          | + 17 16     | S                                  |                                                          | 16 11 <sup>.04</sup>   | + 1 <sup>.73</sup> | 12 <sup>.77</sup>         | S                                |                                                           | 34 20 <sup>.88</sup>   | + 1 <sup>.38</sup> | 22 <sup>.26</sup>         | 9 <sup>.49</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
| Dec.11                                                                                                                                                              | 1414          | + 41 1      | N                                  | <i>I. P. E.</i>                                          | 4 28 39 <sup>.77</sup> | - 1 <sup>.92</sup> | 37 <sup>.85</sup>         | N                                | <i>I. P. E.</i>                                           | 4 46 47 <sup>.80</sup> | - 0 <sup>.46</sup> | 47 <sup>.34</sup>         | 18 9 <sup>.49</sup>                   | <i>m s</i><br>18 9 <sup>.505</sup> | -                              | 0 <sup>.004</sup>                                                                                                                             | +                    | 0 <sup>.014</sup> | 18 9 <sup>.515</sup> |
|                                                                                                                                                                     | 1449          | + 22 44     | N                                  | <i>d</i><br><i>c</i> - 4 <sup>.5</sup>                   | 35 17 <sup>.06</sup>   | - 1 <sup>.93</sup> | 15 <sup>.13</sup>         | N                                | <i>d</i><br><i>c</i> - 1 <sup>.9</sup>                    | 53 25 <sup>.87</sup>   | - 1 <sup>.35</sup> | 24 <sup>.52</sup>         | 9 <sup>.39</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1475          | + 32 23     | N                                  | <i>b</i> + 0 <sup>.3</sup><br><i>a</i> - 4 <sup>.6</sup> | 41 49 <sup>.08</sup>   | - 1 <sup>.92</sup> | 47 <sup>.16</sup>         | N                                | <i>b</i> + 6 <sup>.7</sup><br><i>a</i> - 94 <sup>.1</sup> | 59 57 <sup>.61</sup>   | - 0 <sup>.91</sup> | 56 <sup>.70</sup>         | 9 <sup>.54</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1402          | + 15 36     | S                                  | <i>s</i><br><i>Q</i> - 1 <sup>.84</sup>                  | 25 14 <sup>.13</sup>   | - 1 <sup>.94</sup> | 12 <sup>.19</sup>         | S                                | <i>s</i><br><i>Q</i> - 1 <sup>.47</sup>                   | 43 23 <sup>.37</sup>   | - 1 <sup>.62</sup> | 21 <sup>.75</sup>         | 9 <sup>.56</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1434          | + 12 16     | S                                  |                                                          | 31 40 <sup>.25</sup>   | - 1 <sup>.94</sup> | 38 <sup>.31</sup>         | S                                |                                                           | 49 49 <sup>.60</sup>   | - 1 <sup>.75</sup> | 47 <sup>.85</sup>         | 9 <sup>.54</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1460          | + 10 56     | S                                  |                                                          | 37 60 <sup>.01</sup>   | - 1 <sup>.95</sup> | 58 <sup>.06</sup>         | S                                |                                                           | 56 9 <sup>.36</sup>    | - 1 <sup>.79</sup> | 7 <sup>.57</sup>          | 9 <sup>.51</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
| Dec.12                                                                                                                                                              | 1322          | + 34 17     | N                                  | <i>I. P. W.</i>                                          | 4 12 49 <sup>.52</sup> | + 2 <sup>.04</sup> | 51 <sup>.56</sup>         | N                                | <i>I. P. E.</i>                                           | 4 30 59 <sup>.10</sup> | + 1 <sup>.88</sup> | 60 <sup>.98</sup>         | 18 9 <sup>.42</sup>                   | <i>m s</i><br>18 9 <sup>.387</sup> | -                              | 0 <sup>.004</sup>                                                                                                                             | +                    | 0 <sup>.014</sup> | 18 9 <sup>.397</sup> |
|                                                                                                                                                                     | 1364          | + 31 10     | N                                  | <i>d</i><br><i>c</i> + 3 <sup>.3</sup>                   | 18 40 <sup>.04</sup>   | + 2 <sup>.04</sup> | 42 <sup>.08</sup>         | N                                | <i>d</i><br><i>c</i> - 1 <sup>.2</sup>                    | 36 49 <sup>.65</sup>   | + 1 <sup>.75</sup> | 51 <sup>.40</sup>         | 9 <sup>.32</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1371          | + 22 44     | N                                  | <i>b</i> + 3 <sup>.4</sup><br><i>a</i> - 1 <sup>.6</sup> | 20 17 <sup>.86</sup>   | + 2 <sup>.01</sup> | 19 <sup>.87</sup>         | N                                | <i>b</i> - 3 <sup>.2</sup><br><i>a</i> - 95 <sup>.4</sup> | 38 27 <sup>.82</sup>   | + 1 <sup>.38</sup> | 29 <sup>.20</sup>         | 9 <sup>.33</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1311          | + 20 17     | S                                  | <i>s</i><br><i>Q</i> + 1 <sup>.85</sup>                  | 10 24 <sup>.33</sup>   | + 2 <sup>.01</sup> | 26 <sup>.34</sup>         | S                                | <i>s</i><br><i>Q</i> + 1 <sup>.48</sup>                   | 28 34 <sup>.39</sup>   | + 1 <sup>.28</sup> | 35 <sup>.67</sup>         | 9 <sup>.33</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1335          | + 13 35     | S                                  |                                                          | 14 17 <sup>.64</sup>   | + 2 <sup>.01</sup> | 19 <sup>.65</sup>         | S                                |                                                           | 32 28 <sup>.05</sup>   | + 1 <sup>.04</sup> | 29 <sup>.09</sup>         | 9 <sup>.44</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1346          | + 17 16     | S                                  |                                                          | 16 11 <sup>.14</sup>   | + 2 <sup>.01</sup> | 13 <sup>.15</sup>         | S                                |                                                           | 34 21 <sup>.46</sup>   | + 1 <sup>.17</sup> | 22 <sup>.63</sup>         | 9 <sup>.48</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
| Dec.12                                                                                                                                                              | 1414          | + 41 1      | N                                  | <i>I. P. W.</i>                                          | 4 28 40 <sup>.00</sup> | - 1 <sup>.64</sup> | 38 <sup>.36</sup>         | N                                | <i>I. P. E.</i>                                           | 4 46 48 <sup>.51</sup> | - 0 <sup>.71</sup> | 47 <sup>.80</sup>         | 18 9 <sup>.44</sup>                   | <i>m s</i><br>18 9 <sup>.442</sup> | -                              | 0 <sup>.004</sup>                                                                                                                             | +                    | 0 <sup>.014</sup> | 18 9 <sup>.452</sup> |
|                                                                                                                                                                     | 1449          | + 22 44     | N                                  | <i>d</i><br><i>c</i> + 3 <sup>.3</sup>                   | 35 17 <sup>.28</sup>   | - 1 <sup>.69</sup> | 15 <sup>.59</sup>         | N                                | <i>d</i><br><i>c</i> - 1 <sup>.2</sup>                    | 53 26 <sup>.62</sup>   | - 1 <sup>.58</sup> | 25 <sup>.04</sup>         | 9 <sup>.45</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1475          | + 32 23     | N                                  | <i>b</i> + 3 <sup>.4</sup><br><i>a</i> - 1 <sup>.6</sup> | 41 49 <sup>.29</sup>   | - 1 <sup>.66</sup> | 47 <sup>.63</sup>         | N                                | <i>b</i> - 3 <sup>.2</sup><br><i>a</i> - 95 <sup>.4</sup> | 59 58 <sup>.14</sup>   | - 1 <sup>.15</sup> | 56 <sup>.99</sup>         | 9 <sup>.36</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1402          | + 15 36     | S                                  | <i>s</i><br><i>Q</i> - 1 <sup>.85</sup>                  | 25 14 <sup>.37</sup>   | - 1 <sup>.69</sup> | 12 <sup>.68</sup>         | S                                | <i>s</i><br><i>Q</i> - 1 <sup>.48</sup>                   | 43 24 <sup>.08</sup>   | - 1 <sup>.86</sup> | 22 <sup>.22</sup>         | 9 <sup>.54</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1434          | + 12 16     | S                                  |                                                          | 31 40 <sup>.55</sup>   | - 1 <sup>.70</sup> | 38 <sup>.85</sup>         | S                                |                                                           | 49 50 <sup>.28</sup>   | - 1 <sup>.97</sup> | 48 <sup>.31</sup>         | 9 <sup>.46</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |
|                                                                                                                                                                     | 1460          | + 10 56     | S                                  |                                                          | 37 60 <sup>.21</sup>   | - 1 <sup>.70</sup> | 58 <sup>.51</sup>         | S                                |                                                           | 56 9 <sup>.93</sup>    | - 2 <sup>.02</sup> | 7 <sup>.91</sup>          | 9 <sup>.40</sup>                      |                                    |                                |                                                                                                                                               |                      |                   |                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *etl*, all records having been transcribed by the same person.

\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                      |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|--------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>E Clock | Corrns for Persl. Equations<br>If $H_N - H_S = + 0^s.013$<br>$S_N - S_S = + 0^s.041$ | $\delta L_N - \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                      |                     |
| 1883                                                                                                                                                                |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                      |                     |
| Dec.13                                                                                                                                                              | 1322             | + 34 17          | N                                                                   | <i>I. P. W.</i>                                                 | 4 12 49.96               | + 1.99                   | 51.95                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 30 58.96               | + 1.97                   | 60.93                                | 18 8.98                                     |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1364             | + 31 10          | N                                                                   | <i>d</i><br><i>c + 2.8</i>                                      | 18 40.33                 | + 1.97                   | 42.30                                | N                                                                 | <i>d</i><br><i>c - 1.9</i>                                      | 36 49.49                 | + 1.81                   | 51.30                                | 9.00                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1371             | + 22 44          | N                                                                   | <i>b + 2.5</i><br><i>a - 1.6</i>                                | 20 18.13                 | + 1.96                   | 20.09                                | N                                                                 | <i>b - 1.8</i><br><i>a - 107.6</i>                              | 38 27.65                 | + 1.40                   | 29.05                                | 8.96                                        | <i>m s</i><br>18 8.978 | 0.003                             | + 0.014                                                                              | 18 8.989            |
|                                                                                                                                                                     | 1311             | + 20 17          | S                                                                   | <i>s</i><br><i>Q + 1.83</i>                                     | 10 24.62                 | + 1.96                   | 26.58                                | S                                                                 | <i>s</i><br><i>Q + 1.48</i>                                     | 28 34.32                 | + 1.29                   | 35.61                                | 9.03                                        | <i>m s</i><br>18 8.978 | 0.003                             | + 0.014                                                                              | 18 8.989            |
|                                                                                                                                                                     | 1335             | + 13 35          | S                                                                   |                                                                 | 14 18.01                 | + 1.95                   | 19.96                                | S                                                                 |                                                                 | 32 27.94                 | + 1.01                   | 28.95                                | 8.99                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1346             | + 17 16          | S                                                                   |                                                                 | 16 11.52                 | + 1.96                   | 13.48                                | S                                                                 |                                                                 | 34 21.23                 | + 1.16                   | 22.39                                | 8.91                                        |                        |                                   |                                                                                      |                     |
| Dec.13                                                                                                                                                              | 1414             | + 41 1           | N                                                                   | <i>I. P. W.</i>                                                 | 4 28 40.23               | - 1.66                   | 38.57                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 46 48.24               | - 0.58                   | 47.66                                | 18 9.09                                     |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1449             | + 22 44          | N                                                                   | <i>d</i><br><i>c + 2.8</i>                                      | 35 17.51                 | - 1.70                   | 15.81                                | N                                                                 | <i>d</i><br><i>c - 1.9</i>                                      | 53 26.43                 | - 1.56                   | 24.87                                | 9.06                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1475             | + 32 23          | N                                                                   | <i>b + 2.5</i><br><i>a - 1.6</i>                                | 41 49.59                 | - 1.68                   | 47.91                                | N                                                                 | <i>b - 1.8</i><br><i>a - 107.6</i>                              | 59 58.10                 | - 1.09                   | 57.01                                | 9.10                                        | <i>m s</i><br>18 9.123 | 0.003                             | + 0.014                                                                              | 18 9.134            |
|                                                                                                                                                                     | 1402             | + 15 36          | S                                                                   | <i>s</i><br><i>Q - 1.83</i>                                     | 25 14.58                 | - 1.70                   | 12.88                                | S                                                                 | <i>s</i><br><i>Q - 1.48</i>                                     | 43 23.94                 | - 1.87                   | 22.07                                | 9.19                                        | <i>m s</i><br>18 9.123 | 0.003                             | + 0.014                                                                              | 18 9.134            |
|                                                                                                                                                                     | 1434             | + 12 16          | S                                                                   |                                                                 | 31 40.74                 | - 1.72                   | 39.02                                | S                                                                 |                                                                 | 49 50.19                 | - 2.00                   | 48.19                                | 9.17                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1460             | + 10 56          | S                                                                   |                                                                 | 37 60.42                 | - 1.72                   | 58.70                                | S                                                                 |                                                                 | 56 9.88                  | - 2.05                   | 7.83                                 | 9.13                                        |                        |                                   |                                                                                      |                     |
| Dec.14                                                                                                                                                              | 1322             | + 34 17          | N                                                                   | <i>I. P. E.</i>                                                 | 4 12 49.90               | + 1.88                   | 51.78                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 30 59.01               | + 2.07                   | 61.08                                | 18 9.30                                     |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1364             | + 31 10          | N                                                                   | <i>d</i><br><i>c + 0.0</i>                                      | 18 40.32                 | + 1.88                   | 42.20                                | N                                                                 | <i>d</i><br><i>c + 0.8</i>                                      | 36 49.60                 | + 1.91                   | 51.51                                | 9.31                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1371             | + 22 44          | N                                                                   | <i>b + 0.9</i><br><i>a - 1.8</i>                                | 20 18.17                 | + 1.87                   | 20.04                                | N                                                                 | <i>b - 0.9</i><br><i>a - 107.1</i>                              | 38 27.79                 | + 1.49                   | 29.28                                | 9.24                                        | <i>m s</i><br>18 9.303 | 0.002                             | + 0.014                                                                              | 18 9.315            |
|                                                                                                                                                                     | 1311             | + 20 17          | S                                                                   | <i>s</i><br><i>Q + 1.85</i>                                     | 10 24.63                 | + 1.87                   | 26.50                                | S                                                                 | <i>s</i><br><i>Q + 1.48</i>                                     | 28 34.44                 | + 1.38                   | 35.82                                | 9.32                                        | <i>m s</i><br>18 9.303 | 0.002                             | + 0.014                                                                              | 18 9.315            |
|                                                                                                                                                                     | 1335             | + 13 35          | S                                                                   |                                                                 | 14 17.89                 | + 1.87                   | 19.76                                | S                                                                 |                                                                 | 32 28.02                 | + 1.09                   | 29.11                                | 9.35                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1346             | + 17 16          | S                                                                   |                                                                 | 16 11.44                 | + 1.87                   | 13.31                                | S                                                                 |                                                                 | 34 21.37                 | + 1.24                   | 22.61                                | 9.30                                        |                        |                                   |                                                                                      |                     |
| Dec.14                                                                                                                                                              | 1414             | + 41 1           | N                                                                   | <i>I. P. E.</i>                                                 | 4 28 40.36               | - 1.80                   | 38.56                                | N                                                                 | <i>I. P. W.</i>                                                 | 4 46 48.37               | - 0.48                   | 47.89                                | 18 9.33                                     |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1449             | + 22 44          | N                                                                   | <i>d</i><br><i>c + 0.0</i>                                      | 37 17.56                 | - 1.83                   | 15.73                                | N                                                                 | <i>d</i><br><i>c + 0.8</i>                                      | 53 26.55                 | - 1.47                   | 25.08                                | 9.35                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1475             | + 32 23          | N                                                                   | <i>b + 0.9</i><br><i>a - 1.8</i>                                | 41 49.61                 | - 1.82                   | 47.79                                | N                                                                 | <i>b - 0.9</i><br><i>a - 107.1</i>                              | 59 58.17                 | - 0.99                   | 57.18                                | 9.30                                        | <i>m s</i><br>18 9.390 | 0.002                             | + 0.014                                                                              | 18 9.402            |
|                                                                                                                                                                     | 1402             | + 15 36          | S                                                                   | <i>s</i><br><i>Q - 1.85</i>                                     | 24 14.61                 | - 1.83                   | 12.78                                | S                                                                 | <i>s</i><br><i>Q - 1.48</i>                                     | 43 23.99                 | - 1.79                   | 22.20                                | 9.42                                        | <i>m s</i><br>18 9.390 | 0.002                             | + 0.014                                                                              | 18 9.402            |
|                                                                                                                                                                     | 1434             | + 12 16          | S                                                                   |                                                                 | 31 40.82                 | - 1.84                   | 38.98                                | S                                                                 |                                                                 | 49 50.31                 | - 1.92                   | 48.39                                | 9.41                                        |                        |                                   |                                                                                      |                     |
|                                                                                                                                                                     | 1460             | + 10 56          | S                                                                   |                                                                 | 37 60.46                 | - 1.84                   | 58.62                                | S                                                                 |                                                                 | 56 10.03                 | - 1.97                   | 8.06                                 | 9.44                                        |                        |                                   |                                                                                      |                     |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation nil, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (R) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CALCUTTA (W) Lat. 22° 85', Long. 5 <sup>h</sup> 53 <sup>m</sup> 86 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                                                                                   |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .013<br>S <sub>N</sub> - S <sub>S</sub> = + 0 <sup>s</sup> .041 | δ L <sub>N</sub> + ρ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                                                                                   |                      |
| 1888                                                                                                                                                                |                  | 0                |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                                                                                   |                      |
| Nov. 27                                                                                                                                                             | 1681             | + 28 30          | N                                                                   | <i>I. P. E.</i>                                                 | 5 051.26                 | + 1.80                   | 53.06                                | N                                                                 | <i>I. P. E.</i>                                                 | 5 19 0.96                | + 1.50                   | 2.46                                 | 18 9.40                                     |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1768             | + 30 25          | N                                                                   | <i>d</i>                                                        | 13 4.82                  | + 1.80                   | 6.62                                 | N                                                                 | <i>d</i>                                                        | 31 14.69                 | + 1.52                   | 16.21                                | 9.59                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1738             | + 20 23          | S                                                                   | <i>a - 2.3</i><br><i>b + 0.6</i><br><i>a - 2.2</i>              | 8 38.66                  | + 1.77                   | 40.43                                | S                                                                 | <i>a + 1.5</i><br><i>b - 2.1</i><br><i>a - 28.9</i>             | 26 48.69                 | + 1.39                   | 50.08                                | 9.65                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1749             | + 9 51           | S                                                                   | <i>s</i><br><i>Q + 1.83</i>                                     | 10 38.40                 | + 1.78                   | 40.18                                | S                                                                 | <i>s</i><br><i>Q + 1.43</i>                                     | 28 48.47                 | + 1.26                   | 49.73                                | 9.55                                        | <i>m s</i><br>18 9.548 | + 0.080                           | + 0.014                                                                                                                                           | 18 9.642             |
| Nov. 27                                                                                                                                                             | 1837             | + 24 31          | N                                                                   | <i>I. P. E.</i>                                                 | 5 23 51.00               | - 1.88                   | 49.12                                | N                                                                 | <i>I. P. E.</i>                                                 | 5 41 60.15               | - 1.41                   | 58.74                                | 18 9.62                                     |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1896             | + 25 56          | N                                                                   | <i>d</i>                                                        | 32 44.99                 | - 1.87                   | 43.12                                | N                                                                 | <i>d</i>                                                        | 50 54.02                 | - 1.40                   | 52.62                                | 9.50                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1820             | + 20 14          | S                                                                   | <i>a - 2.3</i><br><i>b + 0.6</i><br><i>a - 2.2</i>              | 21 60.37                 | - 1.88                   | 58.49                                | S                                                                 | <i>a + 1.5</i><br><i>b - 2.1</i><br><i>a - 28.9</i>             | 40 9.61                  | - 1.47                   | 8.14                                 | 9.65                                        | <i>m s</i><br>18 9.572 | + 0.080                           | + 0.014                                                                                                                                           | 18 9.666             |
|                                                                                                                                                                     | 1852             | + 14 16          | S                                                                   | <i>s</i><br><i>Q - 1.83</i>                                     | 25 50.03                 | - 1.88                   | 48.15                                | S                                                                 | <i>s</i><br><i>Q - 1.43</i>                                     | 43 59.22                 | - 1.55                   | 57.67                                | 9.52                                        |                        |                                   |                                                                                                                                                   |                      |
| Dec. 8                                                                                                                                                              | 1975             | + 23 1           | N                                                                   | <i>I. P. W.</i>                                                 | 5 45 31.44               | + 1.76                   | 33.20                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 3 40.95                | + 1.72                   | 42.67                                | 18 9.47                                     |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 2002             | + 22 32          | N                                                                   | <i>d</i>                                                        | 49 56.22                 | + 1.77                   | 57.99                                | N                                                                 | <i>d</i>                                                        | 8 5.77                   | + 1.70                   | 7.47                                 | 9.48                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 2021             | + 35 15          | N                                                                   | <i>a - 0.7</i><br><i>b - 1.4</i><br><i>a + 4.5</i>              | 53 12.11                 | + 1.73                   | 13.84                                | N                                                                 | <i>a + 2.1</i><br><i>b + 4.8</i><br><i>a - 92.1</i>             | 11 21.08                 | + 2.27                   | 23.35                                | 9.51                                        | <i>m s</i><br>18 9.470 | 0.014                             | + 0.006                                                                                                                                           | 18 9.462             |
|                                                                                                                                                                     | 2047             | + 22 34          | N                                                                   | <i>s</i><br><i>Q + 1.82</i>                                     | 58 0.22                  | + 1.77                   | 1.99                                 | S                                                                 | <i>s</i><br><i>Q + 1.53</i>                                     | 16 9.77                  | + 1.70                   | 11.47                                | 9.48                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 1986             | + 19 49          | S                                                                   | <i>s</i><br><i>Q - 1.82</i>                                     | 47 12.79                 | + 1.77                   | 14.56                                | S                                                                 | <i>s</i><br><i>Q - 1.53</i>                                     | 5 22.38                  | + 1.59                   | 23.97                                | 9.41                                        |                        |                                   |                                                                                                                                                   |                      |
| Dec. 8                                                                                                                                                              | 2139             | + 38 32          | N                                                                   | <i>I. P. W.</i>                                                 | 6 10 42.03               | - 1.92                   | 40.11                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 28 50.17               | - 0.61                   | 49.56                                | 18 9.45                                     |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 2155             | + 39 29          | N                                                                   | <i>d</i>                                                        | 12 44.95                 | - 1.92                   | 43.03                                | N                                                                 | <i>d</i>                                                        | 30 53.07                 | - 0.56                   | 52.51                                | 9.48                                        |                        |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 2080             | + 20 51          | S                                                                   | <i>a - 0.7</i><br><i>b - 1.4</i><br><i>a + 4.5</i>              | 2 59.05                  | - 1.87                   | 57.18                                | S                                                                 | <i>a + 2.1</i><br><i>b + 4.8</i><br><i>a - 92.1</i>             | 21 8.09                  | - 1.42                   | 6.67                                 | 9.49                                        | <i>m s</i><br>18 9.495 | 0.014                             | + 0.014                                                                                                                                           | 18 9.495             |
|                                                                                                                                                                     | 2111             | + 15 59          | S                                                                   | <i>s</i><br><i>Q - 1.82</i>                                     | 7 4.26                   | - 1.86                   | 2.40                                 | S                                                                 | <i>s</i><br><i>Q - 1.53</i>                                     | 25 13.58                 | - 1.62                   | 11.96                                | 9.56                                        |                        |                                   |                                                                                                                                                   |                      |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *not*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.† Includes (N - S) Equation +  $0^s.01$ .

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ : AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 53^m 36^s$ . |                  |                  |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                            |
|---------------------------------------------------------------------------------------------------------------------------|------------------|------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR             |                  | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Pers. Equations<br>$H_N - H_S = +0.013$<br>$S_N - S_S = +0.041$ |
|                                                                                                                           | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                            |
| 1883                                                                                                                      |                  | $0^{\circ}$      |                                                              |                                                                 | $h\ m\ s$                | $s$                      | $s$                                  |                                                            |                                                                 | $h\ m\ s$                | $s$                      | $s$                                  | $m\ s$                                      |                     |                                   |                                                                            |
| Dec. 9                                                                                                                    | 2002             | + 22 32          | N                                                            | <i>I. P. W.</i>                                                 | 5 49 57.33               | +1.75                    | 59.08                                | N                                                          | <i>I. P. W.</i>                                                 | 6 8 6.87                 | +1.41                    | 8.28                                 | 18 9.20                                     |                     |                                   |                                                                            |
|                                                                                                                           | 2021             | + 35 15          | N                                                            | $c + 0.4$<br>$d$                                                | 53 13.26                 | +1.69                    | 14.95                                | N                                                          | $c - 7.5$<br>$d$                                                | 11 22.16                 | +1.88                    | 24.04                                | 9.09                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2047             | + 22 34          | N                                                            | $b - 2.9$<br>$a + 9.0$                                          | 58 1.38                  | +1.75                    | 3.13                                 | N                                                          | $b + 2.5$<br>$a - 82.3$                                         | 16 11.01                 | +1.41                    | 12.42                                | 9.20                                        |                     |                                   |                                                                            |
|                                                                                                                           | 1986             | + 19 49          | S                                                            | $Q + 1.82$                                                      | 47 13.92                 | +1.75                    | 15.67                                | S                                                          | $Q + 1.53$                                                      | 5 23.40                  | +1.32                    | 24.72                                | 9.05                                        |                     |                                   |                                                                            |
| Dec. 9                                                                                                                    | 2139             | + 38 32          | N                                                            | <i>I. P. W.</i>                                                 | 6 10 43.09               | -1.97                    | 41.12                                | N                                                          | <i>I. P. W.</i>                                                 | 6 28 51.31               | -1.03                    | 50.28                                | 18 9.16                                     |                     |                                   |                                                                            |
|                                                                                                                           | 2155             | + 39 29          | N                                                            | $c + 0.4$<br>$d$                                                | 12 46.02                 | -1.98                    | 44.04                                | N                                                          | $c - 7.5$<br>$d$                                                | 30 54.18                 | -0.98                    | 53.20                                | 9.16                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2080             | + 20 51          | S                                                            | $b - 2.9$<br>$a + 9.0$                                          | 2 60.17                  | -1.88                    | 58.29                                | S                                                          | $b + 2.5$<br>$a - 82.3$                                         | 21 9.13                  | -1.71                    | 7.42                                 | 9.13                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2099             | - 0 30           | S                                                            | $Q - 1.82$                                                      | 4 60.18                  | -1.80                    | 58.38                                | S                                                          | $Q - 1.53$                                                      | 23 9.94                  | -2.37                    | 7.57                                 | 9.19                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2111             | + 15 59          | S                                                            |                                                                 | 7 5.36                   | -1.86                    | 3.50                                 | S                                                          |                                                                 | 25 14.52                 | -1.86                    | 12.66                                | 9.16                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2123             | + 4 56           | S                                                            |                                                                 | 8 17.98                  | -1.82                    | 16.16                                | S                                                          |                                                                 | 26 27.57                 | -2.21                    | 25.36                                | 9.20                                        |                     |                                   |                                                                            |
| Dec. 10                                                                                                                   | 1975             | + 23 1           | N                                                            | <i>I. P. E.</i>                                                 | 5 45 33.47               | +1.61                    | 35.08                                | N                                                          | <i>I. P. W.</i>                                                 | 6 3 42.89                | +1.51                    | 44.40                                | 18 9.32                                     |                     |                                   |                                                                            |
|                                                                                                                           | 2002             | + 22 32          | N                                                            | $c - 4.5$<br>$d$                                                | 49 58.20                 | +1.61                    | 59.81                                | N                                                          | $c - 1.4$<br>$d$                                                | 8 7.69                   | +1.49                    | 9.18                                 | 9.37                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2021             | + 35 15          | N                                                            | $b - 3.5$<br>$a - 1.0$                                          | 53 14.06                 | +1.60                    | 15.66                                | N                                                          | $b + 1.7$<br>$a - 75.9$                                         | 11 23.08                 | +1.95                    | 25.03                                | 9.37                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2047             | + 22 34          | N                                                            | $Q + 1.81$                                                      | 58 2.18                  | +1.61                    | 3.79                                 | N                                                          | $Q + 1.48$                                                      | 16 11.73                 | +1.49                    | 13.22                                | 9.43                                        |                     |                                   |                                                                            |
|                                                                                                                           | 1986             | + 19 49          | S                                                            |                                                                 | 47 14.74                 | +1.62                    | 16.36                                | S                                                          |                                                                 | 5 24.28                  | +1.41                    | 25.69                                | 9.33                                        |                     |                                   |                                                                            |
| Dec. 10                                                                                                                   | 2139             | + 38 32          | N                                                            | <i>I. P. E.</i>                                                 | 6 10 43.99               | -2.03                    | 41.96                                | N                                                          | <i>I. P. W.</i>                                                 | 6 28 52.08               | -0.87                    | 51.21                                | 18 9.25                                     |                     |                                   |                                                                            |
|                                                                                                                           | 2155             | + 39 29          | N                                                            | $c - 4.5$<br>$d$                                                | 12 46.93                 | -2.03                    | 44.90                                | N                                                          | $c - 1.4$<br>$d$                                                | 30 54.91                 | -0.82                    | 54.09                                | 9.19                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2080             | + 20 51          | S                                                            | $b - 3.5$<br>$a - 1.0$                                          | 2 61.04                  | -2.00                    | 59.04                                | S                                                          | $b + 1.7$<br>$a - 75.9$                                         | 21 9.83                  | -1.52                    | 8.31                                 | 9.27                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2111             | + 15 59          | S                                                            | $Q - 1.81$                                                      | 7 6.32                   | -1.99                    | 4.33                                 | S                                                          | $Q - 1.48$                                                      | 25 15.26                 | -1.67                    | 13.59                                | 9.26                                        |                     |                                   |                                                                            |
|                                                                                                                           | 2123             | + 4 56           | S                                                            |                                                                 | 8 19.04                  | -2.00                    | 17.04                                | S                                                          |                                                                 | 26 28.30                 | -1.99                    | 26.31                                | 9.27                                        |                     |                                   |                                                                            |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

† Includes (N - S) Equation + 0.01.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ ; AND CALCUTTA (W) Lat. $22^{\circ} 33'$ , Long. $5^h 58^m 36^s$ . |                  |             |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |
|---------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR             |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Peral. Equations<br>$H_N - H_S = +0.013$<br>$S_N - S_S = +0.041$ |
|                                                                                                                           | B.A.C.<br>Number | Declination | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |
| 1883                                                                                                                      |                  | ° ' "       |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |
| Dec. 11                                                                                                                   | 1975             | + 23 1      | N                                                            | <i>I. P. E.</i>                                                 | 5 45 33.60               | + 1.75                   | 35.35                                | N                                                          | <i>I. P. E.</i>                                                 | 6 3 43.50                | + 1.60                   | 45.10                                | 18 9.75                                     |                     |                                   |                                                                              |
|                                                                                                                           | 2002             | + 22 32     | N                                                            | <i>c - d</i><br>4.5                                             | 49 58.41                 | + 1.74                   | 60.15                                | N                                                          | <i>c - d</i><br>1.9                                             | 8 8.20                   | + 1.58                   | 9.78                                 | 9.63                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2021             | + 35 15     | N                                                            | <i>b + a</i><br>0.3<br>4.6                                      | 53 14.18                 | + 1.75                   | 15.93                                | N                                                          | <i>b + a</i><br>6.7<br>-94.1                                    | 11 23.58                 | + 2.16                   | 25.74                                | 9.81                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2047             | + 22 34     | N                                                            | <i>Q + s</i><br>1.84                                            | 58 2.32                  | + 1.75                   | 4.07                                 | N                                                          | <i>Q + s</i><br>1.47                                            | 16 12.20                 | + 1.58                   | 13.78                                | 9.71                                        |                     |                                   |                                                                              |
|                                                                                                                           | 1986             | + 19 49     | S                                                            |                                                                 | 47 14.97                 | + 1.74                   | 16.71                                | S                                                          |                                                                 | 5 24.87                  | + 1.48                   | 26.35                                | 9.64                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2038             | + 21 11     | S                                                            |                                                                 | 56 31.42                 | + 1.74                   | 33.16                                | S                                                          |                                                                 | 14 41.32                 | + 1.53                   | 42.85                                | 9.69                                        |                     |                                   |                                                                              |
| Dec. 11                                                                                                                   | 2139             | + 38 32     | N                                                            | <i>I. P. E.</i>                                                 | 6 10 44.09               | - 1.92                   | 42.17                                | N                                                          | <i>I. P. E.</i>                                                 | 6 28 52.45               | - 0.60                   | 51.85                                | 18 9.68                                     |                     |                                   |                                                                              |
|                                                                                                                           | 2155             | + 39 29     | N                                                            | <i>c - d</i><br>4.5                                             | 12 46.97                 | - 1.92                   | 45.05                                | N                                                          | <i>c - d</i><br>1.9                                             | 30 55.33                 | - 0.54                   | 54.79                                | 9.74                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2080             | + 20 51     | S                                                            | <i>b + a</i><br>0.3<br>4.6                                      | 2 61.15                  | - 1.94                   | 59.21                                | S                                                          | <i>b + a</i><br>6.7<br>-94.1                                    | 21 10.35                 | - 1.43                   | 8.92                                 | 9.71                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2099             | - 0 30      | S                                                            | <i>Q + s</i><br>1.84                                            | 4 61.40                  | - 1.97                   | 59.43                                | S                                                          | <i>Q + s</i><br>1.47                                            | 23 11.26                 | - 2.20                   | 9.06                                 | 9.63                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2111             | + 15 59     | S                                                            |                                                                 | 7 6.49                   | - 1.94                   | 4.55                                 | S                                                          |                                                                 | 25 15.84                 | - 1.60                   | 14.24                                | 9.69                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2123             | + 4 56      | S                                                            |                                                                 | 8 19.19                  | - 1.96                   | 17.23                                | S                                                          |                                                                 | 26 28.96                 | - 2.01                   | 26.95                                | 9.72                                        |                     |                                   |                                                                              |
| Dec. 12                                                                                                                   | 1975             | + 23 1      | N                                                            | <i>I. P. W.</i>                                                 | 5 45 33.41               | + 2.01                   | 35.42                                | N                                                          | <i>I. P. E.</i>                                                 | 6 3 43.54                | + 1.39                   | 44.93                                | 18 9.51                                     |                     |                                   |                                                                              |
|                                                                                                                           | 2002             | + 22 32     | N                                                            | <i>c - d</i><br>3.3                                             | 49 58.18                 | + 2.01                   | 60.19                                | N                                                          | <i>c - d</i><br>1.2                                             | 8 8.38                   | + 1.37                   | 9.75                                 | 9.56                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2021             | + 35 15     | N                                                            | <i>b + a</i><br>3.4<br>1.6                                      | 53 13.98                 | + 2.04                   | 16.02                                | N                                                          | <i>b - a</i><br>3.2<br>-95.4                                    | 11 23.52                 | + 1.93                   | 25.45                                | 9.43                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2047             | + 22 34     | N                                                            | <i>Q + s</i><br>1.85                                            | 58 2.16                  | + 2.01                   | 4.17                                 | N                                                          | <i>Q + s</i><br>1.48                                            | 16 12.27                 | + 1.37                   | 13.64                                | 9.47                                        |                     |                                   |                                                                              |
|                                                                                                                           | 1986             | + 19 49     | S                                                            |                                                                 | 47 14.71                 | + 2.01                   | 16.72                                | S                                                          |                                                                 | 5 24.97                  | + 1.27                   | 26.24                                | 9.52                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2038             | + 21 11     | S                                                            |                                                                 | 56 31.33                 | + 2.01                   | 33.34                                | S                                                          |                                                                 | 14 41.42                 | + 1.32                   | 42.74                                | 9.40                                        |                     |                                   |                                                                              |
| Dec. 12                                                                                                                   | 2139             | + 38 32     | N                                                            | <i>I. P. W.</i>                                                 | 6 10 43.90               | - 1.66                   | 42.24                                | N                                                          | <i>I. P. E.</i>                                                 | 6 28 52.58               | - 0.85                   | 51.73                                | 18 9.49                                     |                     |                                   |                                                                              |
|                                                                                                                           | 2155             | + 39 29     | N                                                            | <i>c - d</i><br>3.3                                             | 12 46.75                 | - 1.64                   | 45.11                                | N                                                          | <i>c - d</i><br>1.2                                             | 30 55.47                 | - 0.79                   | 54.68                                | 9.57                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2080             | + 20 51     | S                                                            | <i>b + a</i><br>3.4<br>1.6                                      | 2 61.05                  | - 1.69                   | 59.36                                | S                                                          | <i>b - a</i><br>3.2<br>-95.4                                    | 21 10.53                 | - 1.66                   | 8.87                                 | 9.51                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2099             | - 0 30      | S                                                            | <i>Q + s</i><br>1.85                                            | 4 61.25                  | - 1.72                   | 59.53                                | S                                                          | <i>Q + s</i><br>1.48                                            | 23 11.42                 | - 2.42                   | 9.00                                 | 9.47                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2111             | + 15 59     | S                                                            |                                                                 | 7 6.37                   | - 1.69                   | 4.68                                 | S                                                          |                                                                 | 25 16.04                 | - 1.84                   | 14.20                                | 9.52                                        |                     |                                   |                                                                              |
|                                                                                                                           | 2123             | + 4 56      | S                                                            |                                                                 | 8 18.99                  | - 1.72                   | 17.27                                | S                                                          |                                                                 | 26 29.08                 | - 2.23                   | 26.85                                | 9.58                                        |                     |                                   |                                                                              |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation n2, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> ; AND CALCUTTA (W) Lat. 22° 33', Long. 5 <sup>h</sup> 53 <sup>m</sup> 36 <sup>s</sup> . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                             |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|---------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0^{\circ}.013$<br>$S_N - S_S = +0^{\circ}.041$ | $\delta L_N + \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                             |                     |
| 1883                                                                                                                                                                |                  | ° ' "       |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                             |                     |
| Dec.13                                                                                                                                                              | 1975             | + 23 1      | N                                                                   | <i>I. P. W.</i>                                                 | 5 45 33.24               | +1.96                    | 35.20                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 3 42.97                | +1.41                    | 44.38                                | 18 9.18                                     |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2002             | + 22 32     | N                                                                   | <i>c + 2.8</i><br><i>d</i>                                      | 49 58.05                 | +1.96                    | 60.01                                | N                                                                 | <i>c + 1.9</i><br><i>d</i>                                      | 8 7.80                   | +1.39                    | 9.19                                 | 9.18                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2021             | + 35 15     | N                                                                   | <i>b + 2.5</i><br><i>a - 1.6</i>                                | 53 13.81                 | +1.99                    | 15.80                                | N                                                                 | <i>b - 1.8</i><br><i>a - 107.6</i>                              | 11 23.00                 | +2.03                    | 25.03                                | 9.23                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2047             | + 22 34     | N                                                                   | <i>s</i><br><i>Q + 1.83</i>                                     | 58 1.94                  | +1.96                    | 3.90                                 | N                                                                 | <i>s</i><br><i>Q + 1.48</i>                                     | 16 11.78                 | +1.39                    | 13.17                                | 9.27                                        | <i>m s</i><br>18 9.185 | + 0.002                           | + 0.009                                                                                     | 18 9.196            |
|                                                                                                                                                                     | 1986             | + 19 49     | S                                                                   |                                                                 | 47 14.61                 | +1.96                    | 16.57                                | S                                                                 |                                                                 | 5 24.34                  | +1.27                    | 25.61                                | 9.04                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2038             | + 21 11     | S                                                                   |                                                                 | 56 31.08                 | +1.96                    | 33.04                                | S                                                                 |                                                                 | 14 40.91                 | +1.34                    | 42.25                                | 9.21                                        |                        |                                   |                                                                                             |                     |
| Dec.13                                                                                                                                                              | 2139             | + 38 32     | N                                                                   | <i>I. P. W.</i>                                                 | 6 10 43.68               | -1.67                    | 42.01                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 28 51.87               | -0.73                    | 51.14                                | 18 9.13                                     |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2155             | + 39 29     | N                                                                   | <i>c + 2.8</i><br><i>d</i>                                      | 12 46.58                 | -1.66                    | 44.92                                | N                                                                 | <i>c + 1.9</i><br><i>d</i>                                      | 30 54.71                 | -0.68                    | 54.03                                | 9.11                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2080             | + 20 51     | S                                                                   | <i>b + 2.5</i><br><i>a - 1.6</i>                                | 2 60.83                  | -1.70                    | 59.13                                | S                                                                 | <i>b - 1.8</i><br><i>a - 107.6</i>                              | 21 9.93                  | -1.65                    | 8.28                                 | 9.15                                        | <i>m s</i><br>18 9.163 | + 0.002                           | + 0.019                                                                                     | 18 9.184            |
|                                                                                                                                                                     | 2099             | - 0 30      | S                                                                   | <i>s</i><br><i>Q - 1.83</i>                                     | 4 61.00                  | -1.73                    | 59.27                                | S                                                                 | <i>s</i><br><i>Q - 1.48</i>                                     | 23 10.97                 | -2.51                    | 8.46                                 | 9.19                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2111             | + 15 59     | S                                                                   |                                                                 | 7 6.04                   | -1.70                    | 4.34                                 | S                                                                 |                                                                 | 25 15.39                 | -1.85                    | 13.54                                | 9.20                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2123             | + 4 56      | S                                                                   |                                                                 | 8 18.80                  | -1.73                    | 17.07                                | S                                                                 |                                                                 | 26 28.56                 | -2.29                    | 26.27                                | 9.20                                        |                        |                                   |                                                                                             |                     |
| Dec.14                                                                                                                                                              | 1975             | + 23 1      | N                                                                   | <i>I. P. E.</i>                                                 | 5 45 33.00               | +1.87                    | 34.87                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 3 42.81                | +1.50                    | 44.31                                | 18 9.44                                     |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2002             | + 22 32     | N                                                                   | <i>c + 0.0</i><br><i>d</i>                                      | 49 57.73                 | +1.87                    | 59.60                                | N                                                                 | <i>c + 0.8</i><br><i>d</i>                                      | 8 7.71                   | +1.48                    | 9.19                                 | 9.59                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2021             | + 35 15     | N                                                                   | <i>b + 0.9</i><br><i>a - 1.8</i>                                | 53 13.50                 | +1.88                    | 15.38                                | N                                                                 | <i>b - 0.9</i><br><i>a - 107.1</i>                              | 11 22.75                 | +2.12                    | 24.87                                | 9.49                                        | <i>m s</i><br>18 9.497 | + 0.001                           | + 0.009                                                                                     | 18 9.507            |
|                                                                                                                                                                     | 2047             | + 22 34     | N                                                                   | <i>s</i><br><i>Q + 1.85</i>                                     | 58 1.74                  | +1.87                    | 3.61                                 | N                                                                 | <i>s</i><br><i>Q + 1.48</i>                                     | 16 11.56                 | +1.48                    | 13.04                                | 9.43                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 1986             | + 19 49     | S                                                                   |                                                                 | 47 14.19                 | +1.87                    | 16.06                                | S                                                                 |                                                                 | 5 24.29                  | +1.36                    | 25.65                                | 9.59                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2038             | + 21 11     | S                                                                   |                                                                 | 56 30.81                 | +1.87                    | 32.68                                | S                                                                 |                                                                 | 14 40.69                 | +1.43                    | 42.12                                | 9.44                                        |                        |                                   |                                                                                             |                     |
| Dec.14                                                                                                                                                              | 2139             | + 38 32     | N                                                                   | <i>I. P. E.</i>                                                 | 6 10 43.55               | -1.81                    | 41.74                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 28 51.68               | -0.63                    | 51.05                                | 18 9.31                                     |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2155             | + 39 29     | N                                                                   | <i>c + 0.0</i><br><i>d</i>                                      | 12 46.44                 | -1.81                    | 44.63                                | N                                                                 | <i>c + 0.8</i><br><i>d</i>                                      | 30 54.56                 | -0.58                    | 53.98                                | 9.35                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2080             | + 20 51     | S                                                                   | <i>b + 0.9</i><br><i>a - 1.8</i>                                | 2 60.62                  | -1.83                    | 58.79                                | S                                                                 | <i>b - 0.9</i><br><i>a - 107.1</i>                              | 21 9.79                  | -1.55                    | 8.24                                 | 9.45                                        | <i>m s</i><br>18 9.420 | + 0.001                           | + 0.019                                                                                     | 18 9.440            |
|                                                                                                                                                                     | 2099             | - 0 30      | S                                                                   | <i>s</i><br><i>Q - 1.85</i>                                     | 4 60.78                  | -1.84                    | 58.94                                | S                                                                 | <i>s</i><br><i>Q - 1.48</i>                                     | 23 10.86                 | -2.42                    | 8.44                                 | 9.50                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2111             | + 15 59     | S                                                                   |                                                                 | 7 5.87                   | -1.83                    | 4.04                                 | S                                                                 |                                                                 | 25 15.26                 | -1.77                    | 13.49                                | 9.45                                        |                        |                                   |                                                                                             |                     |
|                                                                                                                                                                     | 2123             | + 4 56      | S                                                                   |                                                                 | 8 18.62                  | -1.84                    | 16.78                                | S                                                                 |                                                                 | 26 28.45                 | -2.21                    | 26.24                                | 9.46                                        |                        |                                   |                                                                                             |                     |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *s*14, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CHITTAGONG (W) Lat. 23° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| Astronomical Date                                                                                                                                                    | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Peral. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .031<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .017 | M <sub>N</sub> |
|                                                                                                                                                                      | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |
| 1883                                                                                                                                                                 |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                |
| Dec. 26                                                                                                                                                              | 1863             | + 27 35          | N                                                                   | <i>I. P. E.</i>                                                 | 5 45 52.53               | + 1.84                   | 54.37                                | N                                                                 | <i>I. P. E.</i>                                                 | 5 46 9.00                | + 1.74                   | 10.74                                | + 0 16.37                                   |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1896             | + 25 56          | N                                                                   | <i>d</i>                                                        | 50 38.03                 | + 1.85                   | 39.88                                | N                                                                 | <i>d</i>                                                        | 50 54.68                 | + 1.70                   | 56.38                                | 16.50                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1925             | + 22 24          | N                                                                   | <i>c</i> + 0.6<br><i>b</i> - 1.8<br><i>a</i> - 4.4              | 54 31.55                 | + 1.83                   | 33.38                                | N                                                                 | <i>c</i> + 2.9<br><i>b</i> + 1.0<br><i>a</i> - 66.0             | 54 48.33                 | + 1.58                   | 49.91                                | 16.53                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1880             | + 19 43          | S                                                                   | <i>s</i>                                                        | 47 54.76                 | + 1.83                   | 56.59                                | S                                                                 | <i>s</i>                                                        | 48 11.60                 | + 1.51                   | 13.11                                | 16.52                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1907             | + 12 48          | S                                                                   | <i>Q</i> + 1.86                                                 | 52 11.71                 | + 1.82                   | 13.53                                | S                                                                 | <i>Q</i> + 1.49                                                 | 52 28.71                 | + 1.33                   | 30.04                                | 16.51                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1934             | + 19 41          | S                                                                   |                                                                 | 56 25.44                 | + 1.83                   | 27.27                                | S                                                                 |                                                                 | 56 42.39                 | + 1.51                   | 43.90                                | 16.63                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      |                  |                  |                                                                     | Mean, T <sub>E</sub>                                            | 5 51 16                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |
| Dec. 26                                                                                                                                                              | 1971             | + 23 8           | N                                                                   | <i>I. P. E.</i>                                                 | 6 2 35.23                | - 1.88                   | 33.35                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 2 51.30                | - 1.38                   | 49.92                                | + 0 16.57                                   |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2029             | + 23 19          | N                                                                   | <i>d</i>                                                        | 12 13.33                 | - 1.88                   | 11.45                                | N                                                                 | <i>d</i>                                                        | 12 29.52                 | - 1.37                   | 28.15                                | 16.70                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1958             | + 14 47          | S                                                                   | <i>c</i> + 0.6<br><i>b</i> - 1.8<br><i>a</i> - 4.4              | 0 50.62                  | - 1.90                   | 48.72                                | S                                                                 | <i>c</i> + 2.9<br><i>b</i> + 1.0<br><i>a</i> - 66.0             | 1 7.01                   | - 1.60                   | 5.41                                 | 16.69                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1886             | + 19 49          | S                                                                   | <i>s</i>                                                        | 5 2.98                   | - 1.89                   | 1.09                                 | S                                                                 | <i>s</i>                                                        | 5 19.11                  | - 1.47                   | 17.64                                | 16.55                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2004             | + 19 12          | S                                                                   | <i>Q</i> - 1.86                                                 | 7 55.23                  | - 1.89                   | 53.34                                | S                                                                 | <i>Q</i> - 1.49                                                 | 8 11.42                  | - 1.49                   | 9.93                                 | 16.59                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2022             | + 9 59           | S                                                                   |                                                                 | 10 36.60                 | - 1.91                   | 34.69                                | S                                                                 |                                                                 | 10 53.10                 | - 1.72                   | 51.38                                | 16.69                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      |                  |                  |                                                                     | Mean, T <sub>E</sub>                                            | 6 6 32                   |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |
| Dec. 27                                                                                                                                                              | 1863             | + 27 35          | N                                                                   | <i>I. P. W.</i>                                                 | 5 45 51.78               | + 1.87                   | 53.65                                | N                                                                 | <i>I. P. E.</i>                                                 | 5 46 17.85               | + 1.56                   | 19.41                                | + 0 25.76                                   |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1896             | + 25 56          | N                                                                   | <i>d</i>                                                        | 50 37.34                 | + 1.87                   | 39.21                                | N                                                                 | <i>d</i>                                                        | 51 3.47                  | + 1.56                   | 5.03                                 | 25.82                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1925             | + 22 24          | N                                                                   | <i>c</i> + 1.9<br><i>b</i> - 2.9<br><i>a</i> - 2.6              | 54 30.87                 | + 1.86                   | 32.73                                | N                                                                 | <i>c</i> + 2.7<br><i>b</i> - 0.8<br><i>a</i> - 10.6             | 54 57.06                 | + 1.54                   | 58.60                                | 25.87                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1880             | + 19 43          | S                                                                   | <i>s</i>                                                        | 47 54.10                 | + 1.86                   | 55.96                                | S                                                                 | <i>s</i>                                                        | 48 20.21                 | + 1.52                   | 21.73                                | 25.77                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1907             | + 12 48          | S                                                                   | <i>Q</i> + 1.88                                                 | 52 10.97                 | + 1.84                   | 12.81                                | S                                                                 | <i>Q</i> + 1.49                                                 | 52 37.17                 | + 1.49                   | 38.66                                | 25.85                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1934             | + 19 41          | S                                                                   |                                                                 | 56 24.77                 | + 1.86                   | 26.63                                | S                                                                 |                                                                 | 56 50.98                 | + 1.52                   | 52.50                                | 25.87                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      |                  |                  |                                                                     | Mean, T <sub>E</sub>                                            | 5 51 15                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |
| Dec. 27                                                                                                                                                              | 1971             | + 23 8           | N                                                                   | <i>I. P. W.</i>                                                 | 6 2 34.63                | - 1.90                   | 32.73                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 2 59.95                | - 1.44                   | 58.51                                | + 0 25.78                                   |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2029             | + 23 19          | N                                                                   | <i>d</i>                                                        | 12 12.78                 | - 1.90                   | 10.88                                | N                                                                 | <i>d</i>                                                        | 12 38.28                 | - 1.44                   | 36.84                                | 25.96                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1958             | + 14 47          | S                                                                   | <i>c</i> + 1.9<br><i>b</i> - 2.9<br><i>a</i> - 2.6              | 0 50.06                  | - 1.92                   | 48.14                                | S                                                                 | <i>c</i> + 2.7<br><i>b</i> - 0.8<br><i>a</i> - 10.6             | 1 15.52                  | - 1.48                   | 14.04                                | 25.90                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 1886             | + 19 49          | S                                                                   | <i>s</i>                                                        | 5 2.33                   | - 1.90                   | 0.43                                 | S                                                                 | <i>s</i>                                                        | 5 27.77                  | - 1.46                   | 26.31                                | 25.88                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2004             | + 19 12          | S                                                                   | <i>Q</i> - 1.88                                                 | 7 54.61                  | - 1.90                   | 52.71                                | S                                                                 | <i>Q</i> - 1.49                                                 | 8 20.06                  | - 1.46                   | 18.60                                | 25.89                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      | 2022             | + 9 59           | S                                                                   |                                                                 | 10 36.02                 | - 1.92                   | 34.10                                | S                                                                 |                                                                 | 11 1.56                  | - 1.50                   | 0.06                                 | 25.96                                       |                     |                                   |                                                                                                                                                    |                |
|                                                                                                                                                                      |                  |                  |                                                                     | Mean, T <sub>E</sub>                                            | 6 6 32                   |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                |

NOTE.— $i^d = 0^{\circ}0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .AKYAB (E) Lat.  $20^{\circ} 8'$ , Long.  $6^h 11^m 45^s$ ; AND CHITTAGONG (W) Lat.  $23^{\circ} 20'$ , Long.  $6^h 7^m 31^s$ .

| Astronomical Date | STAR          |             | TRANSITS OBSERVED AT E |                                                    |                    |                  |                           | TRANSITS OBSERVED AT W |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = + 0^s.031$<br>$S_N - S_S = - 0^s.017$ | $M_N$ |
|-------------------|---------------|-------------|------------------------|----------------------------------------------------|--------------------|------------------|---------------------------|------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|-----------------------------------------------------------------------------------|-------|
|                   | B.A.C. Number | Declination | Star's Aspect          | In-strumental Position and Correction Constants    | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect          | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time | By each Star                          | Mean of Group |                                |                                                                                   |       |
|                   |               |             |                        |                                                    |                    |                  |                           |                        |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |       |
| 1883              |               | ° ' "       |                        |                                                    | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                        |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                   |       |
| Dec.28            | 1863          | + 27 35     | N                      | <i>I. P. W.</i>                                    | 5 45 51.21         | + 1.77           | 52.98                     | N                      | <i>I. P. W.</i>                                     | 5 46 26.69         | + 1.44           | 28.13                     | + 0 35.15                             |               |                                |                                                                                   |       |
|                   | 1896          | + 25 56     | N                      | <i>d</i>                                           | 50 36.75           | + 1.78           | 38.53                     | N                      | <i>d</i>                                            | 51 12.25           | + 1.43           | 13.68                     | 35.15                                 |               |                                |                                                                                   |       |
|                   | 1925          | + 22 24     | N                      | <i>c</i> - 2.3<br><i>b</i> - 1.4<br><i>a</i> + 0.9 | 54 30.31           | + 1.78           | 32.09                     | N                      | <i>c</i> - 1.7<br><i>b</i> - 0.3<br><i>a</i> - 13.0 | 55 5.90            | + 1.41           | 7.31                      | 35.22                                 |               |                                |                                                                                   |       |
|                   | 1880          | + 19 43     | S                      | <i>s</i>                                           | 47 53.51           | + 1.79           | 55.30                     | S                      | <i>s</i>                                            | 48 29.09           | + 1.40           | 30.49                     | 35.19                                 |               |                                |                                                                                   |       |
|                   | 1907          | + 12 48     | S                      | <i>Q</i> + 1.87                                    | 52 10.40           | + 1.79           | 12.19                     | S                      | <i>Q</i> + 1.46                                     | 52 46.00           | + 1.36           | 47.36                     | 35.17                                 |               |                                |                                                                                   |       |
|                   | 1934          | + 19 41     | S                      |                                                    | 56 24.22           | + 1.79           | 26.01                     | S                      |                                                     | 56 59.81           | + 1.40           | 61.21                     | 35.20                                 |               |                                |                                                                                   |       |
|                   |               |             | Mean, $T_x$            | 5 51.14                                            |                    |                  |                           |                        |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |       |
| Dec.28            | 1971          | + 23 8      | N                      | <i>I. P. W.</i>                                    | 6 2 33.97          | - 1.96           | 32.01                     | N                      | <i>I. P. W.</i>                                     | 6 3 8.77           | - 1.51           | 7.26                      | + 0 35.25                             |               |                                |                                                                                   |       |
|                   | 2029          | + 23 19     | N                      | <i>d</i>                                           | 12 12.16           | - 1.96           | 10.20                     | N                      | <i>d</i>                                            | 12 47.07           | - 1.50           | 45.57                     | 35.37                                 |               |                                |                                                                                   |       |
|                   | 1986          | + 19 49     | S                      | <i>c</i> - 2.3<br><i>b</i> - 1.4<br><i>a</i> + 0.9 | 4 61.66            | - 1.96           | 59.70                     | S                      | <i>c</i> - 1.7<br><i>b</i> - 0.3<br><i>a</i> - 13.0 | 5 36.58            | - 1.52           | 35.06                     | 35.36                                 |               |                                |                                                                                   |       |
|                   | 2004          | + 19 12     | S                      | <i>s</i>                                           | 7 53.99            | - 1.95           | 52.04                     | S                      | <i>s</i>                                            | 8 28.84            | - 1.53           | 27.31                     | 35.27                                 |               |                                |                                                                                   |       |
|                   | 2022          | + 9 59      | S                      | <i>Q</i> - 1.87                                    | 10 35.45           | - 1.95           | 33.50                     | S                      | <i>Q</i> - 1.46                                     | 11 10.30           | - 1.57           | 8.73                      | 35.23                                 |               |                                |                                                                                   |       |
|                   |               |             |                        | Mean, $T_x$                                        | 6 7.39             |                  |                           |                        |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |       |
| Dec.29            | 1863          | + 27 35     | N                      | <i>I. P. E.</i>                                    | 5 45 50.30         | + 1.90           | 52.20                     | N                      | <i>I. P. W.</i>                                     | 5 46 35.58         | + 1.46           | 37.04                     | + 0 44.84                             |               |                                |                                                                                   |       |
|                   | 1896          | + 25 56     | N                      | <i>d</i>                                           | 50 35.87           | + 1.91           | 37.78                     | N                      | <i>d</i>                                            | 51 21.20           | + 1.45           | 22.65                     | 44.87                                 |               |                                |                                                                                   |       |
|                   | 1925          | + 22 24     | N                      | <i>c</i> + 1.1<br><i>b</i> - 0.2<br><i>a</i> + 3.3 | 54 29.43           | + 1.92           | 31.35                     | N                      | <i>c</i> - 1.4<br><i>b</i> + 0.4<br><i>a</i> - 11.5 | 55 14.76           | + 1.44           | 16.20                     | 44.85                                 |               |                                |                                                                                   |       |
|                   | 1880          | + 19 43     | S                      | <i>s</i>                                           | 47 52.54           | + 1.92           | 54.46                     | S                      | <i>s</i>                                            | 48 38.02           | + 1.43           | 39.45                     | 44.99                                 |               |                                |                                                                                   |       |
|                   | 1907          | + 12 48     | S                      | <i>Q</i> + 1.89                                    | 52 9.39            | + 1.93           | 11.32                     | S                      | <i>Q</i> + 1.46                                     | 52 54.92           | + 1.40           | 56.32                     | 45.00                                 |               |                                |                                                                                   |       |
|                   | 1984          | + 19 41     | S                      |                                                    | 56 23.29           | + 1.92           | 25.21                     | S                      |                                                     | 57 8.73            | + 1.43           | 10.16                     | 44.95                                 |               |                                |                                                                                   |       |
|                   |               |             | Mean, $T_x$            | 5 51.13                                            |                    |                  |                           |                        |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |       |
| Dec.29            | 1971          | + 23 8      | N                      | <i>I. P. E.</i>                                    | 6 2 33.17          | - 1.86           | 31.31                     | N                      | <i>I. P. W.</i>                                     | 6 3 17.73          | - 1.48           | 16.25                     | + 0 44.94                             |               |                                |                                                                                   |       |
|                   | 2029          | + 23 19     | N                      | <i>d</i>                                           | 12 11.33           | - 1.86           | 9.47                      | N                      | <i>d</i>                                            | 12 55.95           | - 1.48           | 54.47                     | 45.00                                 |               |                                |                                                                                   |       |
|                   | 1986          | + 14 47     | S                      | <i>c</i> + 1.1<br><i>b</i> - 0.2<br><i>a</i> + 3.3 | 0 48.55            | - 1.85           | 46.70                     | S                      | <i>c</i> - 1.4<br><i>b</i> + 0.4<br><i>a</i> - 11.5 | 1 33.24            | - 1.52           | 31.72                     | 45.02                                 |               |                                |                                                                                   |       |
|                   | 1986          | + 19 49     | S                      | <i>s</i>                                           | 4 60.78            | - 1.86           | 58.92                     | S                      | <i>s</i>                                            | 5 45.47            | - 1.49           | 43.98                     | 45.06                                 |               |                                |                                                                                   |       |
|                   | 2004          | + 19 12     | S                      | <i>Q</i> - 1.89                                    | 7 53.06            | - 1.86           | 51.20                     | S                      | <i>Q</i> - 1.46                                     | 8 37.74            | - 1.49           | 36.25                     | 45.05                                 |               |                                |                                                                                   |       |
|                   | 2022          | + 9 59      | S                      |                                                    | 10 34.48           | - 1.85           | 32.63                     | S                      |                                                     | 11 19.26           | - 1.54           | 17.72                     | 45.09                                 |               |                                |                                                                                   |       |
|                   |               |             | Mean, $T_x$            | 6 6.30                                             |                    |                  |                           |                        |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |       |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\frac{1}{2}$ , all records having been transcribed by the same person.



OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ ; AND CHITTAGONG (W) Lat. $23^{\circ} 20'$ , Long. $6^h 7^m 81^s$ . |               |             |                                                                     |                                                 |                    |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------|---------------|-------------|---------------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|-------------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------------|---------------|-----------------------------------|--------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                          | STAR          |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                 |                    |                  |                           | Difference of<br>Corrected Times<br>(W - E) |               | Correction for Rate of<br>W Clock | Corrns. for Peral. Equations<br>$H_N - H_S = +0^{\circ}031$<br>$S_N - S_S = -0^{\circ}017$ |
|                                                                                                                            | B.A.C. Number | Declination | Star's Aspect                                                       | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                                                     | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | By each Star                                | Mean of Group |                                   |                                                                                            |
| 1883                                                                                                                       |               | $0^{\circ}$ |                                                                     |                                                 | $h\ m\ s$          | $s$              | $s$                       |                                                                   |                                                 | $h\ m\ s$          | $s$              | $s$                       | $m\ s$                                      |               |                                   |                                                                                            |
| Dec. 30                                                                                                                    | 1863          | + 27 35     | N                                                                   | <i>I. P. E.</i>                                 | 5 45 49.59         | +1.90            | 51.49                     | N                                                                 | <i>I. P. E.</i>                                 | 5 46 44.79         | +1.49            | 46.28                     | +0 54.79                                    |               |                                   |                                                                                            |
|                                                                                                                            | 1896          | + 25 56     | N                                                                   | $c + 0^{\circ}7$                                | 50 35.20           | +1.90            | 37.10                     | N                                                                 | $d$                                             | 51 30.41           | +1.49            | 31.90                     | 54.80                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1925          | + 22 24     | N                                                                   | $b - 1^{\circ}0$                                | 54 28.70           | +1.90            | 30.60                     | N                                                                 | $b + 1^{\circ}7$                                | 55 24.00           | +1.47            | 25.47                     | 54.87                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1880          | + 19 43     | S                                                                   | $a - 5^{\circ}0$                                | 47 51.95           | +1.89            | 53.84                     | S                                                                 | $a - 9^{\circ}7$                                | 48 37.19           | +1.46            | 38.65                     | 54.81                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1907          | + 12 48     | S                                                                   | $Q + 1^{\circ}89$                               | 52 8.80            | +1.87            | 10.67                     | S                                                                 | $Q + 1^{\circ}47$                               | 53 4.10            | +1.44            | 5.54                      | 54.87                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1934          | + 19 41     | S                                                                   |                                                 | 56 22.61           | +1.89            | 24.50                     | S                                                                 |                                                 | 57 17.94           | +1.46            | 19.40                     | 54.90                                       |               |                                   |                                                                                            |
|                                                                                                                            |               |             |                                                                     | Mean, $T_E$                                     | 5 51 13            |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                            |
| Dec. 30                                                                                                                    | 1971          | + 23 8      | N                                                                   | <i>I. P. E.</i>                                 | 6 2 32.46          | -1.88            | 30.58                     | N                                                                 | <i>I. P. E.</i>                                 | 6 3 26.92          | -1.47            | 25.45                     | +0 54.87                                    |               |                                   |                                                                                            |
|                                                                                                                            | 1958          | + 14 47     | S                                                                   | $c + 0^{\circ}7$                                | 0 47.85            | -1.90            | 45.95                     | S                                                                 | $d$                                             | 1 42.42            | -1.49            | 40.93                     | 54.98                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1986          | + 19 49     | S                                                                   | $b - 1^{\circ}0$                                | 4 60.04            | -1.89            | 58.15                     | S                                                                 | $c - 1^{\circ}5$                                | 5 54.67            | -1.48            | 53.19                     | 55.04                                       |               |                                   |                                                                                            |
|                                                                                                                            | 2004          | + 19 12     | S                                                                   | $a - 5^{\circ}0$                                | 7 52.31            | -1.89            | 50.42                     | S                                                                 | $b + 1^{\circ}7$                                | 8 46.96            | -1.48            | 45.48                     | 55.06                                       |               |                                   |                                                                                            |
|                                                                                                                            | 2022          | + 9 59      | S                                                                   | $Q - 1^{\circ}89$                               | 10 33.82           | -1.91            | 31.91                     | S                                                                 | $a - 9^{\circ}7$                                | 11 28.54           | -1.51            | 27.03                     | 55.12                                       |               |                                   |                                                                                            |
|                                                                                                                            |               |             |                                                                     | Mean, $T_E$                                     | 6 5 21             |                  |                           |                                                                   | $Q - 1^{\circ}47$                               |                    |                  |                           |                                             |               |                                   |                                                                                            |
| 1884                                                                                                                       |               |             |                                                                     |                                                 |                    |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                            |
| Jan. 2                                                                                                                     | 1863          | + 27 35     | N                                                                   | <i>I. P. W.</i>                                 | 5 45 47.70         | +1.82            | 49.52                     | N                                                                 | <i>I. P. E.</i>                                 | 5 47 13.07         | +1.45            | 14.52                     | +1 25.00                                    |               |                                   |                                                                                            |
|                                                                                                                            | 1896          | + 25 56     | N                                                                   | $c - 1^{\circ}7$                                | 50 33.34           | +1.82            | 35.16                     | N                                                                 | $d$                                             | 51 58.73           | +1.44            | 60.17                     | 25.01                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1925          | + 22 24     | N                                                                   | $b - 2^{\circ}1$                                | 54 26.88           | +1.81            | 28.69                     | N                                                                 | $c - 1^{\circ}7$                                | 55 52.31           | +1.42            | 53.73                     | 25.04                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1880          | + 19 43     | S                                                                   | $a - 5^{\circ}9$                                | 47 50.13           | +1.80            | 51.93                     | S                                                                 | $b - 1^{\circ}4$                                | 49 15.51           | +1.40            | 16.91                     | 24.98                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1907          | + 12 48     | S                                                                   | $Q + 1^{\circ}89$                               | 52 6.95            | +1.78            | 8.73                      | S                                                                 | $a - 17^{\circ}3$                               | 53 32.47           | +1.35            | 33.82                     | 25.09                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1934          | + 19 41     | S                                                                   |                                                 | 56 20.85           | +1.80            | 22.65                     | S                                                                 | $Q + 1^{\circ}49$                               | 57 46.28           | +1.40            | 47.68                     | 25.03                                       |               |                                   |                                                                                            |
|                                                                                                                            |               |             |                                                                     | Mean, $T_E$                                     | 5 51 11            |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                            |
| Jan. 2                                                                                                                     | 1971          | + 23 8      | N                                                                   | <i>I. P. W.</i>                                 | 6 2 30.62          | -1.97            | 28.65                     | N                                                                 | <i>I. P. E.</i>                                 | 6 3 55.29          | -1.55            | 53.74                     | +1 25.09                                    |               |                                   |                                                                                            |
|                                                                                                                            | 2029          | + 23 19     | N                                                                   | $c - 1^{\circ}7$                                | 12 8.79            | -1.97            | 6.82                      | N                                                                 | $d$                                             | 13 33.50           | -1.55            | 31.95                     | 25.13                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1958          | + 14 47     | S                                                                   | $b - 2^{\circ}1$                                | 0 46.06            | -1.99            | 44.07                     | S                                                                 | $c - 1^{\circ}7$                                | 2 10.82            | -1.61            | 9.21                      | 25.14                                       |               |                                   |                                                                                            |
|                                                                                                                            | 1986          | + 19 49     | S                                                                   | $a - 5^{\circ}9$                                | 4 58.30            | -1.98            | 56.32                     | S                                                                 | $b - 1^{\circ}4$                                | 6 23.06            | -1.58            | 21.48                     | 25.16                                       |               |                                   |                                                                                            |
|                                                                                                                            | 2004          | + 19 12     | S                                                                   | $Q - 1^{\circ}89$                               | 7 50.54            | -1.98            | 48.56                     | S                                                                 | $a - 17^{\circ}3$                               | 9 15.30            | -1.58            | 13.72                     | 25.16                                       |               |                                   |                                                                                            |
|                                                                                                                            | 2022          | + 9 59      | S                                                                   |                                                 | 10 32.01           | -2.00            | 30.01                     | S                                                                 | $Q - 1^{\circ}49$                               | 11 56.84           | -1.64            | 55.20                     | 25.19                                       |               |                                   |                                                                                            |
|                                                                                                                            |               |             |                                                                     | Mean, $T_E$                                     | 6 6 28             |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                            |

NOTE.— $-1^d = 0^{\circ}0225$ . Transcribing Equation  $\#4$ , all records having been transcribed by the same person.

OF THE CORRECTED DIFFERENCE OF OBSERVED TIMES,  $M_N$ .

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^{\text{h}} 11^{\text{m}} 45^{\text{s}}$ ; AND CHITTAGONG (W) Lat. $23^{\circ} 20'$ , Long. $6^{\text{h}} 7^{\text{m}} 31^{\text{s}}$ . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                                                                                | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Perel. Equations<br>$H_N - H_S = + 0^{\circ} 031$<br>$S_N - S_S = - 0^{\circ} 017$ |
|                                                                                                                                                                                  | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                               |
| 1884                                                                                                                                                                             |                  |             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                               |
| Jan. 3                                                                                                                                                                           | 1863             | + 27 35     | N                                                                   | <i>I. P. W.</i>                                                 | 5 45 46.87               | + 1.89                   | 48.76                                | N                                                                 | <i>I. P. W.</i>                                                 | 5 47 21.89               | + 1.46                   | 23.35                                | + 1 34.59                                   |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1896             | + 25 56     | N                                                                   | <i>c - 1.4</i><br><i>d</i>                                      | 50 32.55                 | + 1.88                   | 34.43                                | N                                                                 | <i>c - 0.9</i><br><i>d</i>                                      | 52 7.52                  | + 1.45                   | 8.97                                 | 34.54                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1925             | + 22 24     | N                                                                   | <i>b + 0.2</i><br><i>a - 6.4</i>                                | 54 26.05                 | + 1.88                   | 27.93                                | N                                                                 | <i>b - 1.2</i><br><i>a - 18.2</i>                               | 56 1.14                  | + 1.42                   | 2.56                                 | 34.63                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1880             | + 19 43     | S                                                                   | <i>s</i>                                                        | 47 49.23                 | + 1.87                   | 51.10                                | S                                                                 | <i>s</i>                                                        | 49 24.37                 | + 1.40                   | 25.77                                | 34.67                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1907             | + 12 48     | S                                                                   | <i>Q + 1.90</i>                                                 | 52 6.15                  | + 1.85                   | 8.00                                 | S                                                                 | <i>Q + 1.47</i>                                                 | 53 41.35                 | + 1.35                   | 42.70                                | 34.70                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1934             | + 19 41     | S                                                                   |                                                                 | 56 20.00                 | + 1.87                   | 21.87                                | S                                                                 |                                                                 | 57 55.10                 | + 1.40                   | 56.50                                | 34.63                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  |                  |             |                                                                     | Mean, $T_E$                                                     | 5 51 10                  |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |
| Jan. 3                                                                                                                                                                           | 1971             | + 23 8      | N                                                                   | <i>I. P. W.</i>                                                 | 6 2 29.82                | - 1.92                   | 27.90                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 4 4.07                 | - 1.51                   | 2.56                                 | + 1 34.66                                   |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2029             | + 23 19     | N                                                                   | <i>c - 1.4</i><br><i>d</i>                                      | 12 7.92                  | - 1.92                   | 6.00                                 | N                                                                 | <i>c - 0.9</i><br><i>d</i>                                      | 13 42.43                 | - 1.51                   | 40.92                                | 34.92                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1958             | + 14 47     | S                                                                   | <i>b + 0.2</i><br><i>a - 6.4</i>                                | 0 45.29                  | - 1.94                   | 43.35                                | S                                                                 | <i>b - 1.2</i><br><i>a - 18.2</i>                               | 2 19.66                  | - 1.58                   | 18.08                                | 34.73                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1886             | + 19 49     | S                                                                   | <i>s</i>                                                        | 4 57.53                  | - 1.93                   | 55.60                                | S                                                                 | <i>s</i>                                                        | 6 31.93                  | - 1.54                   | 30.39                                | 34.79                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2004             | + 19 12     | S                                                                   | <i>Q - 1.90</i>                                                 | 7 49.84                  | - 1.93                   | 47.91                                | S                                                                 | <i>Q - 1.47</i>                                                 | 9 24.27                  | - 1.54                   | 22.73                                | 34.82                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2022             | + 9 59      | S                                                                   |                                                                 | 10 31.23                 | - 1.96                   | 29.27                                | S                                                                 |                                                                 | 12 5.80                  | - 1.61                   | 4.19                                 | 34.92                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  |                  |             |                                                                     | Mean, $T_E$                                                     | 6 6 27                   |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |
| Jan. 4                                                                                                                                                                           | 1863             | + 27 35     | N                                                                   | <i>I. P. E.</i>                                                 | 5 45 45.89               | + 1.99                   | 47.88                                | N                                                                 | <i>I. P. W.</i>                                                 | 5 47 30.93               | + 1.50                   | 32.43                                | + 1 44.55                                   |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1896             | + 25 56     | N                                                                   | <i>c + 3.4</i><br><i>d</i>                                      | 50 31.45                 | + 1.99                   | 33.44                                | N                                                                 | <i>c - 0.8</i><br><i>d</i>                                      | 52 16.59                 | + 1.49                   | 18.08                                | 44.64                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1925             | + 22 24     | N                                                                   | <i>b + 0.2</i><br><i>a + 1.7</i>                                | 54 25.01                 | + 1.98                   | 26.99                                | N                                                                 | <i>b - 0.7</i><br><i>a - 22.6</i>                               | 56 10.19                 | + 1.45                   | 11.64                                | 44.65                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1880             | + 19 43     | S                                                                   | <i>s</i>                                                        | 47 48.20                 | + 1.98                   | 50.18                                | S                                                                 | <i>s</i>                                                        | 49 33.37                 | + 1.43                   | 34.80                                | 44.62                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1907             | + 12 48     | S                                                                   | <i>Q + 1.90</i>                                                 | 52 5.06                  | + 1.99                   | 7.03                                 | S                                                                 | <i>Q + 1.49</i>                                                 | 53 50.36                 | + 1.36                   | 51.72                                | 44.67                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1934             | + 19 41     | S                                                                   |                                                                 | 56 18.92                 | + 1.98                   | 20.90                                | S                                                                 |                                                                 | 58 4.18                  | + 1.43                   | 5.61                                 | 44.71                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  |                  |             |                                                                     | Mean, $T_E$                                                     | 5 51 9                   |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |
| Jan. 4                                                                                                                                                                           | 1971             | + 23 8      | N                                                                   | <i>I. P. E.</i>                                                 | 6 2 28.80                | - 1.82                   | 26.98                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 4 13.14                | - 1.52                   | 11.62                                | + 1 44.64                                   |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2029             | + 23 19     | N                                                                   | <i>c + 3.4</i><br><i>d</i>                                      | 12 6.97                  | - 1.82                   | 5.15                                 | N                                                                 | <i>c - 0.8</i><br><i>d</i>                                      | 13 51.38                 | - 1.52                   | 49.86                                | 44.71                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1958             | + 14 47     | S                                                                   | <i>b + 0.2</i><br><i>a + 1.7</i>                                | 0 44.23                  | - 1.82                   | 42.41                                | S                                                                 | <i>b - 0.7</i><br><i>a - 22.6</i>                               | 2 28.69                  | - 1.60                   | 27.09                                | 44.68                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 1886             | + 19 49     | S                                                                   | <i>s</i>                                                        | 4 56.48                  | - 1.82                   | 54.66                                | S                                                                 | <i>s</i>                                                        | 6 40.95                  | - 1.55                   | 39.40                                | 44.74                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2004             | + 19 12     | S                                                                   | <i>Q - 1.90</i>                                                 | 7 48.75                  | - 1.82                   | 46.93                                | S                                                                 | <i>Q - 1.49</i>                                                 | 9 33.29                  | - 1.56                   | 31.73                                | 44.80                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  | 2022             | + 9 59      | S                                                                   |                                                                 | 10 30.24                 | - 1.81                   | 28.43                                | S                                                                 |                                                                 | 12 14.75                 | - 1.64                   | 13.11                                | 44.68                                       |                     |                                   |                                                                                               |
|                                                                                                                                                                                  |                  |             |                                                                     | Mean, $T_E$                                                     | 6 6 26                   |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |

NOTE.— $1^{\text{d}} = 0^{\circ} 0225$ . Transcribing Equation  $\pi/2$ , all records having been transcribed by the same person.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ ; AND CHITTAGONG (W) Lat. $23^{\circ} 20'$ , Long. $6^h 7^m 31^s$ . |                  |             |                                                             |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                   |                     |
|----------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                          | STAR             |             | TRANSITS OBSERVED AT E<br>By Heavside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>$H_N - H_S = + 0^s.031$<br>$S_N - S_S = - 0^s.017$ | $\delta L_N - \rho$ |
|                                                                                                                            | B.A.C.<br>Number | Declination | Star's Aspect                                               | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |                     |
| 1883                                                                                                                       |                  | ° ' "       |                                                             |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                   |                     |
| Dec. 26                                                                                                                    | 1614             | + 32 33     | N                                                           | <i>I. P. E.</i>                                                 | 5 7 41.52                | + 1.86                   | 43.38                                | N                                                          | <i>I. P. E.</i>                                                 | 5 11 55.90               | + 1.92                   | 57.82                                | 4 14.44                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1636             | + 33 50     | N                                                           | <i>d</i>                                                        | 12 12.62                 | + 1.86                   | 14.48                                | N                                                          | <i>d</i>                                                        | 16 26.98                 | + 1.96                   | 28.94                                | 14.46                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1658             | + 28 49     | N                                                           | <i>c + 0.6</i><br><i>b - 1.8</i><br><i>a - 4.4</i>              | 15 52.44                 | + 1.85                   | 54.29                                | N                                                          | <i>c + 2.9</i><br><i>b + 1.0</i><br><i>a - 66.0</i>             | 20 6.90                  | + 1.78                   | 8.68                                 | 14.39                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1601             | + 15 54     | S                                                           | <i>s</i>                                                        | 4 51.84                  | + 1.82                   | 53.66                                | S                                                          | <i>s</i>                                                        | 9 6.75                   | + 1.41                   | 8.16                                 | 14.50                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1624             | + 11 13     | S                                                           | <i>Q + 1.86</i>                                                 | 9 27.50                  | + 1.81                   | 29.31                                | S                                                          | <i>Q + 1.49</i>                                                 | 13 42.52                 | + 1.29                   | 43.81                                | 14.50                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1651             | + 19 42     | S                                                           |                                                                 | 13 55.62                 | + 1.83                   | 57.45                                | S                                                          |                                                                 | 18 10.40                 | + 1.51                   | 11.91                                | 14.46                                       |                     |                                   |                                                                                   |                     |
| Dec. 26                                                                                                                    | 1700             | + 29 5      | N                                                           | <i>I. P. E.</i>                                                 | 5 22 12.57               | - 1.87                   | 10.70                                | N                                                          | <i>I. P. E.</i>                                                 | 5 26 26.28               | - 1.19                   | 25.09                                | 4 14.39                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1714             | + 22 22     | N                                                           | <i>d</i>                                                        | 23 37.24                 | - 1.89                   | 35.35                                | N                                                          | <i>d</i>                                                        | 27 51.04                 | - 1.40                   | 49.64                                | 14.29                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1742             | + 23 57     | N                                                           | <i>c + 0.6</i><br><i>b - 1.8</i><br><i>a - 4.4</i>              | 28 16.01                 | - 1.88                   | 14.13                                | N                                                          | <i>c + 2.9</i><br><i>b + 1.0</i><br><i>a - 66.0</i>             | 32 19.90                 | - 1.35                   | 28.55                                | 14.42                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1692             | + 17 51     | S                                                           | <i>s</i>                                                        | 20 17.93                 | - 1.89                   | 16.04                                | S                                                          | <i>s</i>                                                        | 24 31.99                 | - 1.53                   | 30.46                                | 14.42                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1726             | + 18 30     | S                                                           | <i>Q - 1.86</i>                                                 | 25 18.66                 | - 1.89                   | 16.77                                | S                                                          | <i>Q - 1.49</i>                                                 | 29 32.64                 | - 1.51                   | 31.13                                | 14.36                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1734             | + 18 27     | S                                                           |                                                                 | 26 37.56                 | - 1.89                   | 35.67                                | S                                                          |                                                                 | 30 51.64                 | - 1.51                   | 50.13                                | 14.46                                       |                     |                                   |                                                                                   |                     |
| Dec. 27                                                                                                                    | 1614             | + 32 33     | N                                                           | <i>I. P. W.</i>                                                 | 5 7 40.95                | + 1.87                   | 42.82                                | N                                                          | <i>I. P. E.</i>                                                 | 5 11 55.44               | + 1.59                   | 57.03                                | 4 14.21                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1636             | + 33 50     | N                                                           | <i>d</i>                                                        | 12 11.99                 | + 1.87                   | 13.86                                | N                                                          | <i>d</i>                                                        | 16 26.55                 | + 1.60                   | 28.15                                | 14.29                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1601             | + 15 54     | S                                                           | <i>c + 1.9</i><br><i>b - 2.9</i><br><i>a - 2.6</i>              | 4 51.23                  | + 1.85                   | 53.08                                | S                                                          | <i>c + 2.7</i><br><i>b - 0.8</i><br><i>a - 10.6</i>             | 9 5.90                   | + 1.50                   | 7.40                                 | 14.32                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1624             | + 11 13     | S                                                           | <i>s</i>                                                        | 9 26.90                  | + 1.84                   | 28.74                                | S                                                          | <i>s</i>                                                        | 13 41.48                 | + 1.48                   | 42.96                                | 14.22                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1651             | + 19 42     | S                                                           | <i>Q + 1.88</i>                                                 | 13 54.90                 | + 1.86                   | 56.76                                | S                                                          | <i>Q + 1.49</i>                                                 | 18 9.60                  | + 1.52                   | 11.12                                | 14.36                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            |                  |             |                                                             |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                   |                     |
| Dec. 27                                                                                                                    | 1700             | + 29 5      | N                                                           | <i>I. P. W.</i>                                                 | 5 22 11.87               | - 1.89                   | 9.98                                 | N                                                          | <i>I. P. E.</i>                                                 | 5 26 25.69               | - 1.41                   | 24.28                                | 4 14.30                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1714             | + 22 22     | N                                                           | <i>d</i>                                                        | 23 36.50                 | - 1.90                   | 34.60                                | N                                                          | <i>d</i>                                                        | 27 50.34                 | - 1.44                   | 48.90                                | 14.30                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1742             | + 23 57     | N                                                           | <i>c + 1.9</i><br><i>b - 2.9</i><br><i>a - 2.6</i>              | 28 15.37                 | - 1.90                   | 13.47                                | N                                                          | <i>c + 2.7</i><br><i>b - 0.8</i><br><i>a - 10.6</i>             | 32 29.22                 | - 1.43                   | 27.79                                | 14.32                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1692             | + 17 51     | S                                                           | <i>s</i>                                                        | 20 17.21                 | - 1.91                   | 15.30                                | S                                                          | <i>s</i>                                                        | 24 31.16                 | - 1.47                   | 29.69                                | 14.39                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1726             | + 18 30     | S                                                           | <i>Q - 1.88</i>                                                 | 25 17.94                 | - 1.91                   | 16.03                                | S                                                          | <i>Q - 1.49</i>                                                 | 29 31.83                 | - 1.47                   | 30.36                                | 14.33                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                            | 1734             | + 18 27     | S                                                           |                                                                 | 26 37.03                 | - 1.91                   | 35.12                                | S                                                          |                                                                 | 30 50.83                 | - 1.47                   | 49.36                                | 14.24                                       |                     |                                   |                                                                                   |                     |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ ; AND CHITTAGONG (W) Lat. $23^{\circ} 20'$ , Long. $6^h 7^m 31^s$ . |               |             |                                                              |                                                 |                    |                  |                           |                                                            |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                  |
|----------------------------------------------------------------------------------------------------------------------------|---------------|-------------|--------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------------|---------------|-----------------------------------|----------------------------------------------------------------------------------|
| Astronomical Date                                                                                                          | STAR          |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                 |                    |                  |                           | Difference of<br>Corrected Times<br>(W - E) |               | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>$H_N - H_S = +0^s.031$<br>$S_N - S_S = -0^s.017$ |
|                                                                                                                            | B.A.C. Number | Declination | Star's Aspect                                                | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                                              | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | By each Star                                | Mean of Group |                                   |                                                                                  |
| 1883                                                                                                                       |               | ° ' "       |                                                              |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                                            |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                                  |               |                                   |                                                                                  |
| Dec. 28                                                                                                                    | 1614          | + 32 33     | N                                                            | <i>I. P. W.</i>                                 | 5 7 40.27          | + 1.76           | 42.03                     | N                                                          | <i>I. P. W.</i>                                 | 5 11 54.60         | + 1.46           | 56.06                     | 4 14.03                                     |               |                                   |                                                                                  |
|                                                                                                                            | 1636          | + 33 50     | N                                                            | <i>c - d</i><br>2.3                             | 12 11.39           | + 1.76           | 13.15                     | N                                                          | <i>c - d</i><br>1.7                             | 16 25.67           | + 1.47           | 27.14                     | 13.99                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1658          | + 28 49     | N                                                            | <i>b - a</i><br>1.4<br>0.9                      | 15 51.17           | + 1.77           | 52.94                     | N                                                          | <i>b - a</i><br>0.3<br>-13.0                    | 20 5.47            | + 1.45           | 6.92                      | 13.98                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1601          | + 15 54     | S                                                            | <i>s</i><br><i>Q + 1.87</i>                     | 4 50.59            | + 1.79           | 52.38                     | S                                                          | <i>s</i><br><i>Q + 1.46</i>                     | 9 5.09             | + 1.38           | 6.47                      | 14.09                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1624          | + 11 13     | S                                                            |                                                 | 9 26.20            | + 1.79           | 27.99                     | S                                                          |                                                 | 13 40.67           | + 1.35           | 42.02                     | 14.03                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1651          | + 19 42     | S                                                            |                                                 | 13 54.29           | + 1.79           | 56.08                     | S                                                          |                                                 | 18 8.75            | + 1.40           | 10.15                     | 14.07                                       |               |                                   |                                                                                  |
| Dec. 28                                                                                                                    | 1709          | + 29 5      | N                                                            | <i>I. P. W.</i>                                 | 5 22 11.34         | - 1.97           | 9.37                      | N                                                          | <i>I. P. W.</i>                                 | 5 26 24.78         | - 1.47           | 23.31                     | 4 13.94                                     |               |                                   |                                                                                  |
|                                                                                                                            | 1714          | + 22 22     | N                                                            | <i>c - d</i><br>2.3                             | 23 36.00           | - 1.96           | 34.04                     | N                                                          | <i>c - d</i><br>1.7                             | 27 49.42           | - 1.51           | 47.91                     | 13.87                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1742          | + 23 57     | N                                                            | <i>b - a</i><br>1.4<br>0.9                      | 28 14.70           | - 1.96           | 12.74                     | N                                                          | <i>b - a</i><br>0.3<br>-13.0                    | 32 28.33           | - 1.50           | 26.83                     | 14.09                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1692          | + 17 51     | S                                                            | <i>s</i><br><i>Q - 1.87</i>                     | 20 16.72           | - 1.95           | 14.77                     | S                                                          | <i>s</i><br><i>Q - 1.46</i>                     | 24 30.26           | - 1.53           | 28.73                     | 13.96                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1726          | + 18 30     | S                                                            |                                                 | 25 17.34           | - 1.95           | 15.39                     | S                                                          |                                                 | 29 30.94           | - 1.53           | 29.41                     | 14.02                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1734          | + 18 27     | S                                                            |                                                 | 26 36.34           | - 1.95           | 34.39                     | S                                                          |                                                 | 30 49.99           | - 1.53           | 48.46                     | 14.07                                       |               |                                   |                                                                                  |
| Dec. 29                                                                                                                    | 1614          | + 32 33     | N                                                            | <i>I. P. E.</i>                                 | 5 7 39.43          | + 1.89           | 41.32                     | N                                                          | <i>I. P. W.</i>                                 | 5 11 53.77         | + 1.49           | 55.26                     | 4 13.94                                     |               |                                   |                                                                                  |
|                                                                                                                            | 1636          | + 33 50     | N                                                            | <i>c - d</i><br>1.1                             | 12 10.52           | + 1.89           | 12.41                     | N                                                          | <i>c - d</i><br>1.4                             | 16 24.84           | + 1.49           | 26.33                     | 13.92                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1658          | + 28 49     | N                                                            | <i>b - a</i><br>0.2<br>3.3                      | 15 50.30           | + 1.90           | 52.20                     | N                                                          | <i>b - a</i><br>0.4<br>-11.5                    | 20 4.69            | + 1.46           | 6.15                      | 13.95                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1601          | + 15 54     | S                                                            | <i>s</i><br><i>Q + 1.89</i>                     | 4 49.74            | + 1.93           | 51.67                     | S                                                          | <i>s</i><br><i>Q + 1.46</i>                     | 9 4.22             | + 1.41           | 5.63                      | 13.96                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1624          | + 11 13     | S                                                            |                                                 | 9 25.31            | + 1.93           | 27.24                     | S                                                          |                                                 | 13 39.88           | + 1.39           | 41.27                     | 14.03                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1651          | + 19 42     | S                                                            |                                                 | 13 53.54           | + 1.92           | 55.46                     | S                                                          |                                                 | 18 7.93            | + 1.43           | 9.36                      | 13.90                                       |               |                                   |                                                                                  |
| Dec. 29                                                                                                                    | 1709          | + 29 5      | N                                                            | <i>I. P. E.</i>                                 | 5 22 10.44         | - 1.88           | 8.56                      | N                                                          | <i>I. P. W.</i>                                 | 5 26 23.97         | - 1.45           | 22.52                     | 4 13.96                                     |               |                                   |                                                                                  |
|                                                                                                                            | 1714          | + 22 22     | N                                                            | <i>c - d</i><br>1.1                             | 23 35.05           | - 1.86           | 33.19                     | N                                                          | <i>c - d</i><br>1.4                             | 27 48.60           | - 1.48           | 47.12                     | 13.93                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1742          | + 23 57     | N                                                            | <i>b - a</i><br>0.2<br>3.3                      | 28 13.89           | - 1.87           | 12.02                     | N                                                          | <i>b - a</i><br>0.4<br>-11.5                    | 32 27.51           | - 1.47           | 26.04                     | 14.02                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1692          | + 17 51     | S                                                            | <i>s</i><br><i>Q - 1.89</i>                     | 20 15.83           | - 1.86           | 13.97                     | S                                                          | <i>s</i><br><i>Q - 1.46</i>                     | 24 29.44           | - 1.50           | 27.94                     | 13.97                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1726          | + 18 30     | S                                                            |                                                 | 25 16.41           | - 1.86           | 14.55                     | S                                                          |                                                 | 29 30.11           | - 1.50           | 28.61                     | 14.06                                       |               |                                   |                                                                                  |
|                                                                                                                            | 1784          | + 18 27     | S                                                            |                                                 | 26 35.44           | - 1.86           | 33.58                     | S                                                          |                                                 | 30 49.17           | - 1.50           | 47.67                     | 14.09                                       |               |                                   |                                                                                  |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |               |             |                                    |                                                    |                    |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                    |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|----------------------------------------------------|--------------------|------------------|---------------------------|----------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                    | STAR          |             | TRANSITS OBSERVED AT E             |                                                    |                    |                  |                           | TRANSITS OBSERVED AT W           |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of E Clock | Corrns. for Persl. Equations<br>$H_N - H_S = + 0^s.031$<br>$S_N - S_S = - 0^s.017$ | $\delta L_N - \rho$ |
|                                                                                                                                                                      |               |             | By Heavyside, with Telescope No. 1 |                                                    |                    |                  |                           | By Strahan, with Telescope No. 2 |                                                     |                    |                  |                           |                                       |               |                                |                                                                                    |                     |
|                                                                                                                                                                      | B.A.C. Number | Declination | Star's Aspect                      | In-strumental Position and Correction Constants    | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                    | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time | By each Star                          | Mean of Group |                                |                                                                                    |                     |
| 1883                                                                                                                                                                 |               | ° ' "       |                                    |                                                    | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                  |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                    |                     |
| Dec.30                                                                                                                                                               | 1636          | + 33 50     | N                                  | <i>I. P. E.</i>                                    | 5 12 9.78          | + 1.91           | 11.69                     | N                                | <i>I. P. E.</i>                                     | 5 16 24.46         | + 1.53           | 25.99                     | 4 14.30                               | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1658          | + 28 49     | N                                  | <i>d</i>                                           | 15 49.53           | + 1.90           | 51.43                     | N                                | <i>d</i>                                            | 20 4.30            | + 1.50           | 5.80                      | 14.37                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1651          | + 19 42     | S                                  | <i>c + 0.7</i><br><i>b - 1.0</i><br><i>a - 5.0</i> | 13 52.74           | + 1.89           | 54.63                     | S                                | <i>c - 1.5</i><br><i>b + 1.7</i><br><i>a - 9.7</i>  | 18 7.57            | + 1.46           | 9.03                      | 14.40                                 | <i>m</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      |               |             |                                    | <i>Q + 1.89</i>                                    |                    |                  |                           |                                  | <i>Q + 1.47</i>                                     |                    |                  |                           |                                       |               |                                |                                                                                    |                     |
| Dec.30                                                                                                                                                               | 1709          | + 29 5      | N                                  | <i>I. P. E.</i>                                    | 5 22 9.75          | - 1.88           | 7.87                      | N                                | <i>I. P. E.</i>                                     | 5 26 23.56         | - 1.44           | 22.12                     | 4 14.25                               | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1714          | + 22 22     | N                                  | <i>d</i>                                           | 23 34.31           | - 1.88           | 32.43                     | N                                | <i>d</i>                                            | 27 48.23           | - 1.47           | 46.76                     | 14.33                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1742          | + 23 57     | N                                  | <i>c + 0.7</i><br><i>b - 1.0</i><br><i>a - 5.0</i> | 28 13.16           | - 1.88           | 11.28                     | N                                | <i>c - 1.5</i><br><i>b + 1.7</i><br><i>a - 9.7</i>  | 32 27.10           | - 1.46           | 25.64                     | 14.36                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1692          | + 17 51     | S                                  | <i>Q - 1.89</i>                                    | 20 15.05           | - 1.90           | 13.15                     | S                                | <i>Q - 1.47</i>                                     | 24 29.01           | - 1.49           | 27.52                     | 14.37                                 | <i>m</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1726          | + 18 30     | S                                  |                                                    | 25 15.69           | - 1.89           | 13.80                     | S                                |                                                     | 29 29.66           | - 1.49           | 28.17                     | 14.37                                 |               |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1734          | + 18 27     | S                                  |                                                    | 26 34.74           | - 1.89           | 32.85                     | S                                |                                                     | 30 48.69           | - 1.49           | 47.20                     | 14.35                                 |               |                                |                                                                                    |                     |
| 1884                                                                                                                                                                 |               |             |                                    |                                                    |                    |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                                    |                     |
| Jan. 2                                                                                                                                                               | 1614          | + 32 33     | N                                  | <i>I. P. W.</i>                                    | 5 7 36.73          | + 1.82           | 38.55                     | N                                | <i>I. P. E.</i>                                     | 5 11 51.38         | + 1.48           | 52.86                     | 4 14.31                               | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1636          | + 33 50     | N                                  | <i>d</i>                                           | 12 7.87            | + 1.82           | 9.69                      | N                                | <i>d</i>                                            | 16 22.44           | + 1.49           | 23.93                     | 14.24                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1658          | + 28 49     | N                                  | <i>c - 1.7</i><br><i>b - 2.1</i><br><i>a - 5.9</i> | 15 47.64           | + 1.82           | 49.46                     | N                                | <i>c - 1.7</i><br><i>b - 1.4</i><br><i>a - 17.3</i> | 20 2.26            | + 1.46           | 3.72                      | 14.26                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1601          | + 15 54     | S                                  | <i>Q + 1.89</i>                                    | 4 47.16            | + 1.79           | 48.95                     | S                                | <i>Q + 1.49</i>                                     | 9 1.84             | + 1.38           | 3.22                      | 14.27                                 | <i>m</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1624          | + 11 13     | S                                  |                                                    | 9 22.81            | + 1.78           | 24.59                     | S                                |                                                     | 13 37.53           | + 1.34           | 38.87                     | 14.28                                 |               |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1651          | + 19 42     | S                                  |                                                    | 13 50.92           | + 1.80           | 52.72                     | S                                |                                                     | 18 5.58            | + 1.40           | 6.98                      | 14.26                                 |               |                                |                                                                                    |                     |
| Jan. 2                                                                                                                                                               | 1709          | + 29 5      | N                                  | <i>I. P. W.</i>                                    | 5 22 7.81          | - 1.96           | 5.85                      | N                                | <i>I. P. E.</i>                                     | 5 26 21.64         | - 1.52           | 20.12                     | 4 14.27                               | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1714          | + 22 22     | N                                  | <i>d</i>                                           | 23 32.48           | - 1.97           | 30.51                     | N                                | <i>d</i>                                            | 27 46.32           | - 1.56           | 44.76                     | 14.25                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1742          | + 23 57     | N                                  | <i>c - 1.7</i><br><i>b - 2.1</i><br><i>a - 5.9</i> | 28 11.30           | - 1.97           | 9.33                      | N                                | <i>c - 1.7</i><br><i>b - 1.4</i><br><i>a - 17.3</i> | 32 25.20           | - 1.55           | 23.65                     | 14.32                                 | <i>s</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1692          | + 17 51     | S                                  | <i>Q - 1.89</i>                                    | 20 13.23           | - 1.99           | 11.24                     | S                                | <i>Q - 1.49</i>                                     | 24 27.15           | - 1.59           | 25.56                     | 14.32                                 | <i>m</i>      |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1726          | + 18 30     | S                                  |                                                    | 25 13.90           | - 1.98           | 11.92                     | S                                |                                                     | 29 27.80           | - 1.59           | 26.21                     | 14.29                                 |               |                                |                                                                                    |                     |
|                                                                                                                                                                      | 1734          | + 18 27     | S                                  |                                                    | 26 32.87           | - 1.98           | 30.89                     | S                                |                                                     | 30 46.84           | - 1.59           | 45.25                     | 14.36                                 |               |                                |                                                                                    |                     |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6h 11m 45s: AND CHITTAGONG (W) Lat. 22° 20', Long. 6h 7m 31s. |                  |             |                                                                     |                                                                  |                          |                          |                                      |                                                                   |                                                                   |                          |                          |                                      |                                             |                     |                                   |                                                                                   |
|--------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|
| Astronomical Date                                                                          | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                  |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                   |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns for Persl. Equations<br>$H_N - H_S = + 0^s.031$<br>$S_N - S_S = - 0^s.017$ |
|                                                                                            | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants  | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants   | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |
| 1884<br>Jan. 3                                                                             | 1614             | + 32 33     | N                                                                   | I. P. W.                                                         | 5 7 35.93                | + 1.91                   | 37.84                                | N                                                                 | I. P. W.                                                          | 5 11 50.19               | + 1.51                   | 51.70                                | 4 13.86                                     |                     |                                   |                                                                                   |
|                                                                                            | 1636             | + 33 50     | N                                                                   | $\begin{matrix} c - 1.4 \\ d \\ b + 0.2 \\ a - 6.4 \end{matrix}$ | 12 7.01                  | + 1.91                   | 8.92                                 | N                                                                 | $\begin{matrix} c - 0.9 \\ d \\ b - 1.2 \\ a - 18.2 \end{matrix}$ | 16 21.23                 | + 1.52                   | 22.75                                | 13.83                                       |                     |                                   |                                                                                   |
|                                                                                            | 1658             | + 28 49     | N                                                                   | $\begin{matrix} c - 1.4 \\ d \\ b + 0.2 \\ a - 6.4 \end{matrix}$ | 15 46.80                 | + 1.89                   | 48.69                                | N                                                                 | $\begin{matrix} c - 0.9 \\ d \\ b - 1.2 \\ a - 18.2 \end{matrix}$ | 20 1.13                  | + 1.47                   | 2.60                                 | 13.91                                       |                     |                                   |                                                                                   |
|                                                                                            | 1601             | + 15 54     | S                                                                   | $\begin{matrix} s \\ Q + 1.90 \end{matrix}$                      | 4 46.29                  | + 1.86                   | 48.15                                | S                                                                 | $\begin{matrix} s \\ Q + 1.47 \end{matrix}$                       | 9 0.69                   | + 1.37                   | 2.06                                 | 13.91                                       |                     |                                   |                                                                                   |
|                                                                                            | 1624             | + 11 13     | S                                                                   |                                                                  | 9 21.97                  | + 1.85                   | 23.82                                | S                                                                 |                                                                   | 13 36.35                 | + 1.34                   | 37.69                                | 13.87                                       |                     |                                   |                                                                                   |
|                                                                                            | 1651             | + 19 42     | S                                                                   |                                                                  | 13 50.01                 | + 1.87                   | 51.88                                | S                                                                 |                                                                   | 18 4.41                  | + 1.40                   | 5.81                                 | 13.93                                       |                     |                                   |                                                                                   |
| Jan. 3                                                                                     | 1709             | + 29 5      | N                                                                   | I. P. W.                                                         | 5 22 7.02                | - 1.90                   | 5.12                                 | N                                                                 | I. P. W.                                                          | 5 26 20.46               | - 1.46                   | 19.00                                | 4 13.88                                     |                     |                                   |                                                                                   |
|                                                                                            | 1714             | + 22 22     | N                                                                   | $\begin{matrix} c - 1.4 \\ d \\ b + 0.2 \\ a - 6.4 \end{matrix}$ | 23 31.73                 | - 1.92                   | 29.81                                | N                                                                 | $\begin{matrix} c - 0.9 \\ d \\ b - 1.2 \\ a - 18.2 \end{matrix}$ | 27 45.21                 | - 1.52                   | 43.69                                | 13.88                                       |                     |                                   |                                                                                   |
|                                                                                            | 1742             | + 23 57     | N                                                                   | $\begin{matrix} c - 1.4 \\ d \\ b + 0.2 \\ a - 6.4 \end{matrix}$ | 28 10.49                 | - 1.92                   | 8.57                                 | N                                                                 | $\begin{matrix} c - 0.9 \\ d \\ b - 1.2 \\ a - 18.2 \end{matrix}$ | 32 24.01                 | - 1.51                   | 22.50                                | 13.93                                       |                     |                                   |                                                                                   |
|                                                                                            | 1692             | + 17 51     | S                                                                   | $\begin{matrix} s \\ Q - 1.90 \end{matrix}$                      | 20 12.44                 | - 1.94                   | 10.50                                | S                                                                 | $\begin{matrix} s \\ Q - 1.47 \end{matrix}$                       | 24 26.00                 | - 1.55                   | 24.45                                | 13.95                                       |                     |                                   |                                                                                   |
|                                                                                            | 1726             | + 18 30     | S                                                                   |                                                                  | 25 13.10                 | - 1.93                   | 11.17                                | S                                                                 |                                                                   | 29 26.69                 | - 1.55                   | 25.14                                | 13.97                                       |                     |                                   |                                                                                   |
|                                                                                            | 1734             | + 18 27     | S                                                                   |                                                                  | 26 32.08                 | - 1.93                   | 30.15                                | S                                                                 |                                                                   | 30 45.68                 | - 1.55                   | 44.13                                | 13.98                                       |                     |                                   |                                                                                   |
| Jan. 4                                                                                     | 1614             | + 32 33     | N                                                                   | I. P. E.                                                         | 5 7 34.96                | + 1.99                   | 36.95                                | N                                                                 | I. P. W.                                                          | 5 11 49.31               | + 1.56                   | 50.87                                | 4 13.92                                     |                     |                                   |                                                                                   |
|                                                                                            | 1636             | + 33 50     | N                                                                   | $\begin{matrix} c + 3.4 \\ d \\ b + 0.2 \\ a + 1.7 \end{matrix}$ | 12 6.02                  | + 1.99                   | 8.01                                 | N                                                                 | $\begin{matrix} c - 0.8 \\ d \\ b - 0.7 \\ a - 22.6 \end{matrix}$ | 16 20.41                 | + 1.57                   | 21.98                                | 13.97                                       |                     |                                   |                                                                                   |
|                                                                                            | 1658             | + 28 49     | N                                                                   | $\begin{matrix} c + 3.4 \\ d \\ b + 0.2 \\ a + 1.7 \end{matrix}$ | 15 45.82                 | + 1.99                   | 47.81                                | N                                                                 | $\begin{matrix} c - 0.8 \\ d \\ b - 0.7 \\ a - 22.6 \end{matrix}$ | 19 20.24                 | + 1.52                   | 21.76                                | 13.95                                       |                     |                                   |                                                                                   |
|                                                                                            | 1601             | + 15 54     | S                                                                   | $\begin{matrix} s \\ Q + 1.90 \end{matrix}$                      | 4 45.28                  | + 1.98                   | 47.26                                | S                                                                 | $\begin{matrix} s \\ Q + 1.49 \end{matrix}$                       | 8 59.84                  | + 1.39                   | 61.23                                | 13.97                                       |                     |                                   |                                                                                   |
|                                                                                            | 1624             | + 11 13     | S                                                                   |                                                                  | 9 20.84                  | + 1.99                   | 22.83                                | S                                                                 |                                                                   | 13 35.49                 | + 1.35                   | 36.84                                | 14.01                                       |                     |                                   |                                                                                   |
|                                                                                            | 1651             | + 19 42     | S                                                                   |                                                                  | 13 48.92                 | + 1.98                   | 50.90                                | S                                                                 |                                                                   | 18 3.53                  | + 1.43                   | 4.96                                 | 14.06                                       |                     |                                   |                                                                                   |
| Jan. 4                                                                                     | 1709             | + 29 5      | N                                                                   | I. P. E.                                                         | 5 22 5.96                | - 1.81                   | 4.15                                 | N                                                                 | I. P. W.                                                          | 5 26 19.67               | - 1.46                   | 18.21                                | 4 14.06                                     |                     |                                   |                                                                                   |
|                                                                                            | 1714             | + 22 22     | N                                                                   | $\begin{matrix} c + 3.4 \\ d \\ b + 0.2 \\ a + 1.7 \end{matrix}$ | 23 30.64                 | - 1.82                   | 28.82                                | N                                                                 | $\begin{matrix} c - 0.8 \\ d \\ b - 0.7 \\ a - 22.6 \end{matrix}$ | 27 44.30                 | - 1.53                   | 42.77                                | 13.95                                       |                     |                                   |                                                                                   |
|                                                                                            | 1742             | + 23 57     | N                                                                   | $\begin{matrix} c + 3.4 \\ d \\ b + 0.2 \\ a + 1.7 \end{matrix}$ | 28 9.47                  | - 1.82                   | 7.65                                 | N                                                                 | $\begin{matrix} c - 0.8 \\ d \\ b - 0.7 \\ a - 22.6 \end{matrix}$ | 32 23.25                 | - 1.51                   | 21.74                                | 14.09                                       |                     |                                   |                                                                                   |
|                                                                                            | 1692             | + 17 51     | S                                                                   | $\begin{matrix} s \\ Q - 1.90 \end{matrix}$                      | 20 11.42                 | - 1.82                   | 9.60                                 | S                                                                 | $\begin{matrix} s \\ Q - 1.49 \end{matrix}$                       | 24 25.17                 | - 1.57                   | 23.60                                | 14.00                                       |                     |                                   |                                                                                   |
|                                                                                            | 1726             | + 18 30     | S                                                                   |                                                                  | 25 12.03                 | - 1.82                   | 10.21                                | S                                                                 |                                                                   | 29 25.80                 | - 1.57                   | 24.23                                | 14.02                                       |                     |                                   |                                                                                   |
|                                                                                            | 1734             | + 18 47     | S                                                                   |                                                                  | 26 31.03                 | - 1.82                   | 29.21                                | S                                                                 |                                                                   | 30 44.85                 | - 1.57                   | 43.28                                | 14.07                                       |                     |                                   |                                                                                   |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation with, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

| AKYAB (E) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ ; AND CHITTAGONG (W) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                          | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heavyside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$H_N - H_S = + 0^s.031$<br>$S_N - S_S = - 0^s.017$ |
|                                                                                                                            | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                    |
| 1883                                                                                                                       |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                    |
| Dec. 26                                                                                                                    | 2161             | + 29 5           | N                                                                   | <i>I. P. E.</i>                                                 | 6 26 54.10               | + 1.85                   | 55.95                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 31 8.69                | + 1.79                   | 10.48                                | 4 14.53                                     |                     |                                   |                                                                                    |
|                                                                                                                            | 2194             | + 25 15          | N                                                                   | <i>d</i>                                                        | 32 40.12                 | + 1.84                   | 41.96                                | N                                                                 | <i>d</i>                                                        | 36 54.82                 | + 1.67                   | 56.49                                | 14.53                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2238             | + 23 44          | N                                                                   | <i>c + 0.6</i><br><i>b - 1.8</i><br><i>a - 4.4</i>              | 40 49.88                 | + 1.84                   | 51.72                                | N                                                                 | <i>c + 2.9</i><br><i>b + 1.0</i><br><i>a - 66.0</i>             | 45 4.60                  | + 1.62                   | 6.22                                 | 14.50                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2173             | + 19 46          | S                                                                   | <i>s</i>                                                        | 29 3.29                  | + 1.83                   | 5.12                                 | S                                                                 | <i>s</i>                                                        | 33 18.08                 | + 1.51                   | 19.59                                | 14.47                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2206             | + 13 1           | S                                                                   | <i>Q + 1.86</i>                                                 | 34 38.93                 | + 1.82                   | 40.75                                | S                                                                 | <i>Q + 1.49</i>                                                 | 38 54.06                 | + 1.34                   | 55.40                                | 14.65                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2255             | + 13 19          | S                                                                   |                                                                 | 43 58.31                 | + 1.82                   | 60.13                                | S                                                                 |                                                                 | 48 13.45                 | + 1.34                   | 14.79                                | 14.66                                       |                     |                                   |                                                                                    |
| Dec. 26                                                                                                                    | 2299             | + 24 23          | N                                                                   | <i>I. P. E.</i>                                                 | 6 51 16.90               | - 1.88                   | 15.02                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 55 30.88               | - 1.34                   | 29.54                                | 4 14.52                                     |                     |                                   |                                                                                    |
|                                                                                                                            | 2313             | + 22 48          | N                                                                   | <i>d</i>                                                        | 54 15.60                 | - 1.88                   | 13.72                                | N                                                                 | <i>d</i>                                                        | 58 29.54                 | - 1.39                   | 28.15                                | 14.43                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2340             | + 30 26          | N                                                                   | <i>c + 0.6</i><br><i>b - 1.8</i><br><i>a - 4.4</i>              | 59 41.67                 | - 1.87                   | 39.80                                | N                                                                 | <i>c + 2.9</i><br><i>b + 1.0</i><br><i>a - 66.0</i>             | 7 3 55.47                | - 1.14                   | 54.33                                | 14.53                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2322             | + 9 21           | S                                                                   | <i>s</i>                                                        | 55 13.92                 | - 1.91                   | 12.01                                | S                                                                 | <i>s</i>                                                        | 6 59 28.36               | - 1.74                   | 26.62                                | 14.61                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2330             | + 16 7           | S                                                                   | <i>Q - 1.86</i>                                                 | 57 38.99                 | - 1.90                   | 37.09                                | S                                                                 | <i>Q - 1.49</i>                                                 | 7 1 53.24                | - 1.57                   | 51.67                                | 14.58                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2354             | - 0 7            | S                                                                   |                                                                 | 7 1 24.00                | - 1.92                   | 22.08                                | S                                                                 |                                                                 | 5 38.66                  | - 1.97                   | 36.69                                | 14.61                                       |                     |                                   |                                                                                    |
| Dec. 27                                                                                                                    | 2161             | + 29 5           | N                                                                   | <i>I. P. W.</i>                                                 | 6 27 2.89                | + 1.87                   | 4.76                                 | N                                                                 | <i>I. P. E.</i>                                                 | 6 31 17.56               | + 1.57                   | 19.13                                | 4 14.37                                     |                     |                                   |                                                                                    |
|                                                                                                                            | 2194             | + 25 15          | N                                                                   | <i>d</i>                                                        | 32 48.87                 | + 1.87                   | 50.74                                | N                                                                 | <i>d</i>                                                        | 37 3.57                  | + 1.55                   | 5.12                                 | 14.38                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2238             | + 23 44          | N                                                                   | <i>c + 1.9</i><br><i>b - 2.9</i><br><i>a - 2.6</i>              | 40 58.62                 | + 1.86                   | 60.48                                | N                                                                 | <i>c + 2.7</i><br><i>b - 0.8</i><br><i>a - 10.6</i>             | 45 13.33                 | + 1.55                   | 14.88                                | 14.40                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2173             | + 19 46          | S                                                                   | <i>s</i>                                                        | 29 12.04                 | + 1.86                   | 13.90                                | S                                                                 | <i>s</i>                                                        | 33 26.77                 | + 1.52                   | 28.29                                | 14.39                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2206             | + 13 1           | S                                                                   | <i>Q + 1.88</i>                                                 | 34 47.86                 | + 1.84                   | 49.70                                | S                                                                 | <i>Q + 1.49</i>                                                 | 39 2.52                  | + 1.49                   | 4.01                                 | 14.31                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2255             | + 13 19          | S                                                                   |                                                                 | 44 7.13                  | + 1.84                   | 8.97                                 | S                                                                 |                                                                 | 48 21.94                 | + 1.49                   | 23.43                                | 14.46                                       |                     |                                   |                                                                                    |
| Dec. 27                                                                                                                    | 2299             | + 24 23          | N                                                                   | <i>I. P. W.</i>                                                 | 6 51 25.72               | - 1.90                   | 23.82                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 55 39.69               | - 1.43                   | 38.26                                | 4 14.44                                     |                     |                                   |                                                                                    |
|                                                                                                                            | 2313             | + 22 48          | N                                                                   | <i>d</i>                                                        | 54 24.37                 | - 1.90                   | 22.47                                | N                                                                 | <i>d</i>                                                        | 58 38.25                 | - 1.44                   | 36.81                                | 14.34                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2340             | + 30 26          | N                                                                   | <i>c + 1.9</i><br><i>b - 2.9</i><br><i>a - 2.6</i>              | 59 50.46                 | - 1.89                   | 48.57                                | N                                                                 | <i>c + 2.7</i><br><i>b - 0.8</i><br><i>a - 10.6</i>             | 7 4 4.35                 | - 1.40                   | 2.95                                 | 14.38                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2322             | + 9 21           | S                                                                   | <i>s</i>                                                        | 55 22.74                 | - 1.91                   | 20.83                                | S                                                                 | <i>s</i>                                                        | 6 59 36.74               | - 1.50                   | 35.24                                | 14.41                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2330             | + 16 7           | S                                                                   | <i>Q + 1.88</i>                                                 | 57 47.85                 | - 1.91                   | 45.94                                | S                                                                 | <i>Q - 1.49</i>                                                 | 7 2 1.76                 | - 1.48                   | 0.28                                 | 14.34                                       |                     |                                   |                                                                                    |
|                                                                                                                            | 2354             | - 0 7            | S                                                                   |                                                                 | 7 1 32.79                | - 1.92                   | 30.87                                | S                                                                 |                                                                 | 5 46.82                  | - 1.54                   | 45.28                                | 14.41                                       |                     |                                   |                                                                                    |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation  $\#17$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (E) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |             |                                                              |                                                                                              |                          |                          |                                      |                                                            |                                                                                               |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                   |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                    | STAR             |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                                              |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                                               |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .031<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .017 | $\delta L_N + \rho$ |
|                                                                                                                                                                      | B.A.C.<br>Number | Declination | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                              | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                               | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                   |                     |
| 1883                                                                                                                                                                 |                  | ° ' "       |                                                              |                                                                                              | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                                               | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                   |                     |
| Dec. 28                                                                                                                                                              | 2161             | + 29 5      | N                                                            | <i>I. P. W.</i>                                                                              | 6 27 11 <sup>s</sup> .97 | + 1 <sup>s</sup> .77     | 13 <sup>s</sup> .74                  | N                                                          | <i>I. P. W.</i>                                                                               | 6 31 26 <sup>s</sup> .39 | + 1 <sup>s</sup> .45     | 27 <sup>s</sup> .84                  | 4 14 <sup>s</sup> .10                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2194             | + 25 15     | N                                                            | <i>d</i>                                                                                     | 32 58 <sup>s</sup> .00   | + 1 <sup>s</sup> .78     | 59 <sup>s</sup> .78                  | N                                                          | <i>d</i>                                                                                      | 37 12 <sup>s</sup> .44   | + 1 <sup>s</sup> .43     | 13 <sup>s</sup> .87                  | 14 <sup>s</sup> .09                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2238             | + 23 44     | N                                                            | <i>c</i> - 2 <sup>s</sup> .3<br><i>b</i> - 1 <sup>s</sup> .4<br><i>a</i> + 0 <sup>s</sup> .9 | 41 7 <sup>s</sup> .79    | + 1 <sup>s</sup> .78     | 9 <sup>s</sup> .57                   | N                                                          | <i>c</i> - 1 <sup>s</sup> .7<br><i>b</i> - 0 <sup>s</sup> .3<br><i>a</i> - 13 <sup>s</sup> .0 | 45 22 <sup>s</sup> .16   | + 1 <sup>s</sup> .42     | 23 <sup>s</sup> .58                  | 14 <sup>s</sup> .01                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2173             | + 19 46     | S                                                            | <i>s</i>                                                                                     | 29 21 <sup>s</sup> .12   | + 1 <sup>s</sup> .79     | 22 <sup>s</sup> .91                  | S                                                          | <i>s</i>                                                                                      | 33 35 <sup>s</sup> .62   | + 1 <sup>s</sup> .40     | 37 <sup>s</sup> .02                  | 14 <sup>s</sup> .11                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2206             | + 13 1      | S                                                            | <i>Q</i> + 1 <sup>s</sup> .87                                                                | 34 56 <sup>s</sup> .85   | + 1 <sup>s</sup> .79     | 58 <sup>s</sup> .64                  | S                                                          | <i>Q</i> + 1 <sup>s</sup> .46                                                                 | 39 11 <sup>s</sup> .36   | + 1 <sup>s</sup> .36     | 12 <sup>s</sup> .72                  | 14 <sup>s</sup> .08                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2255             | + 13 19     | S                                                            |                                                                                              | 44 16 <sup>s</sup> .19   | + 1 <sup>s</sup> .79     | 17 <sup>s</sup> .98                  | S                                                          |                                                                                               | 48 30 <sup>s</sup> .71   | + 1 <sup>s</sup> .36     | 32 <sup>s</sup> .07                  | 14 <sup>s</sup> .09                         |                     |                                   |                                                                                                                                                   |                     |
| Dec. 28                                                                                                                                                              | 2299             | + 24 23     | N                                                            | <i>I. P. W.</i>                                                                              | 6 51 34 <sup>s</sup> .85 | - 1 <sup>s</sup> .96     | 32 <sup>s</sup> .89                  | N                                                          | <i>I. P. W.</i>                                                                               | 6 55 48 <sup>s</sup> .41 | - 1 <sup>s</sup> .50     | 46 <sup>s</sup> .91                  | 4 14 <sup>s</sup> .02                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2313             | + 22 48     | N                                                            | <i>d</i>                                                                                     | 54 33 <sup>s</sup> .48   | - 1 <sup>s</sup> .96     | 31 <sup>s</sup> .52                  | N                                                          | <i>d</i>                                                                                      | 58 47 <sup>s</sup> .07   | - 1 <sup>s</sup> .51     | 45 <sup>s</sup> .56                  | 14 <sup>s</sup> .04                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2340             | + 30 26     | N                                                            | <i>c</i> - 2 <sup>s</sup> .3<br><i>b</i> - 1 <sup>s</sup> .4<br><i>a</i> + 0 <sup>s</sup> .9 | 59 59 <sup>s</sup> .58   | - 1 <sup>s</sup> .97     | 57 <sup>s</sup> .61                  | N                                                          | <i>c</i> - 1 <sup>s</sup> .7<br><i>b</i> - 0 <sup>s</sup> .3<br><i>a</i> - 13 <sup>s</sup> .0 | 7 4 13 <sup>s</sup> .15  | - 1 <sup>s</sup> .46     | 11 <sup>s</sup> .69                  | 14 <sup>s</sup> .08                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2322             | + 9 21      | S                                                            | <i>s</i>                                                                                     | 55 31 <sup>s</sup> .82   | - 1 <sup>s</sup> .95     | 29 <sup>s</sup> .87                  | S                                                          | <i>s</i>                                                                                      | 6 59 45 <sup>s</sup> .58 | - 1 <sup>s</sup> .58     | 44 <sup>s</sup> .00                  | 14 <sup>s</sup> .13                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2330             | + 16 7      | S                                                            | <i>Q</i> - 1 <sup>s</sup> .87                                                                | 57 56 <sup>s</sup> .90   | - 1 <sup>s</sup> .95     | 54 <sup>s</sup> .95                  | S                                                          | <i>Q</i> - 1 <sup>s</sup> .46                                                                 | 7 2 10 <sup>s</sup> .61  | - 1 <sup>s</sup> .54     | 9 <sup>s</sup> .07                   | 14 <sup>s</sup> .12                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2354             | - 0 7       | S                                                            |                                                                                              | 7 14 <sup>s</sup> .87    | - 1 <sup>s</sup> .94     | 39 <sup>s</sup> .93                  | S                                                          |                                                                                               | 5 55 <sup>s</sup> .64    | - 1 <sup>s</sup> .62     | 54 <sup>s</sup> .02                  | 14 <sup>s</sup> .09                         |                     |                                   |                                                                                                                                                   |                     |
| Dec. 29                                                                                                                                                              | 2161             | + 29 5      | N                                                            | <i>I. P. E.</i>                                                                              | 6 27 20 <sup>s</sup> .84 | + 1 <sup>s</sup> .90     | 22 <sup>s</sup> .74                  | N                                                          | <i>I. P. W.</i>                                                                               | 6 31 35 <sup>s</sup> .37 | + 1 <sup>s</sup> .46     | 36 <sup>s</sup> .83                  | 4 14 <sup>s</sup> .09                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2194             | + 25 15     | N                                                            | <i>d</i>                                                                                     | 33 6 <sup>s</sup> .84    | + 1 <sup>s</sup> .91     | 8 <sup>s</sup> .75                   | N                                                          | <i>d</i>                                                                                      | 37 21 <sup>s</sup> .38   | + 1 <sup>s</sup> .45     | 22 <sup>s</sup> .83                  | 14 <sup>s</sup> .08                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2238             | + 23 44     | N                                                            | <i>c</i> + 1 <sup>s</sup> .1<br><i>b</i> - 0 <sup>s</sup> .2<br><i>a</i> + 3 <sup>s</sup> .3 | 41 16 <sup>s</sup> .64   | + 1 <sup>s</sup> .91     | 18 <sup>s</sup> .55                  | N                                                          | <i>c</i> - 1 <sup>s</sup> .4<br><i>b</i> + 0 <sup>s</sup> .4<br><i>a</i> - 11 <sup>s</sup> .5 | 45 31 <sup>s</sup> .15   | + 1 <sup>s</sup> .45     | 32 <sup>s</sup> .60                  | 14 <sup>s</sup> .05                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2173             | + 19 46     | S                                                            | <i>s</i>                                                                                     | 29 29 <sup>s</sup> .96   | + 1 <sup>s</sup> .92     | 31 <sup>s</sup> .88                  | S                                                          | <i>s</i>                                                                                      | 33 44 <sup>s</sup> .52   | + 1 <sup>s</sup> .43     | 45 <sup>s</sup> .95                  | 14 <sup>s</sup> .07                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2206             | + 13 1      | S                                                            | <i>Q</i> + 1 <sup>s</sup> .89                                                                | 35 5 <sup>s</sup> .68    | + 1 <sup>s</sup> .93     | 7 <sup>s</sup> .61                   | S                                                          | <i>Q</i> + 1 <sup>s</sup> .46                                                                 | 39 20 <sup>s</sup> .34   | + 1 <sup>s</sup> .40     | 21 <sup>s</sup> .74                  | 14 <sup>s</sup> .13                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2255             | + 13 19     | S                                                            |                                                                                              | 44 25 <sup>s</sup> .05   | + 1 <sup>s</sup> .93     | 26 <sup>s</sup> .98                  | S                                                          |                                                                                               | 48 39 <sup>s</sup> .69   | + 1 <sup>s</sup> .40     | 41 <sup>s</sup> .09                  | 14 <sup>s</sup> .11                         |                     |                                   |                                                                                                                                                   |                     |
| Dec. 29                                                                                                                                                              | 2299             | + 24 23     | N                                                            | <i>I. P. E.</i>                                                                              | 6 51 43 <sup>s</sup> .66 | - 1 <sup>s</sup> .87     | 41 <sup>s</sup> .79                  | N                                                          | <i>I. P. W.</i>                                                                               | 6 55 57 <sup>s</sup> .36 | - 1 <sup>s</sup> .47     | 55 <sup>s</sup> .89                  | 4 14 <sup>s</sup> .10                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2313             | + 22 48     | N                                                            | <i>d</i>                                                                                     | 54 42 <sup>s</sup> .33   | - 1 <sup>s</sup> .86     | 40 <sup>s</sup> .47                  | N                                                          | <i>d</i>                                                                                      | 58 56 <sup>s</sup> .00   | - 1 <sup>s</sup> .48     | 54 <sup>s</sup> .52                  | 14 <sup>s</sup> .05                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2340             | + 30 26     | N                                                            | <i>c</i> + 1 <sup>s</sup> .1<br><i>b</i> - 0 <sup>s</sup> .2<br><i>a</i> + 3 <sup>s</sup> .3 | 7 0 8 <sup>s</sup> .42   | - 1 <sup>s</sup> .89     | 6 <sup>s</sup> .53                   | N                                                          | <i>c</i> - 1 <sup>s</sup> .4<br><i>b</i> + 0 <sup>s</sup> .4<br><i>a</i> - 11 <sup>s</sup> .5 | 7 4 22 <sup>s</sup> .11  | - 1 <sup>s</sup> .45     | 20 <sup>s</sup> .66                  | 14 <sup>s</sup> .13                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2322             | + 9 21      | S                                                            | <i>s</i>                                                                                     | 6 55 40 <sup>s</sup> .60 | - 1 <sup>s</sup> .85     | 38 <sup>s</sup> .75                  | S                                                          | <i>s</i>                                                                                      | 6 59 54 <sup>s</sup> .52 | - 1 <sup>s</sup> .54     | 52 <sup>s</sup> .98                  | 14 <sup>s</sup> .23                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2330             | + 16 7      | S                                                            | <i>Q</i> - 1 <sup>s</sup> .89                                                                | 58 5 <sup>s</sup> .69    | - 1 <sup>s</sup> .85     | 3 <sup>s</sup> .84                   | S                                                          | <i>Q</i> - 1 <sup>s</sup> .46                                                                 | 7 2 19 <sup>s</sup> .55  | - 1 <sup>s</sup> .51     | 18 <sup>s</sup> .04                  | 14 <sup>s</sup> .20                         |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2354             | - 0 7       | S                                                            |                                                                                              | 7 15 <sup>s</sup> .64    | - 1 <sup>s</sup> .84     | 48 <sup>s</sup> .80                  | S                                                          |                                                                                               | 6 4 <sup>s</sup> .58     | - 1 <sup>s</sup> .58     | 3 <sup>s</sup> .00                   | 14 <sup>s</sup> .20                         |                     |                                   |                                                                                                                                                   |                     |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

| AKYAB (E) Lat. $20^\circ 8'$ , Long. $6^h 11^m 45^s$ . AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |               |             |                                    |                                                    |                    |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                               |
|------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|----------------------------------------------------|--------------------|------------------|---------------------------|----------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|-------------------------------------------------------------------------------|
| Astronomical Date                                                                                                      | STAR          |             | TRANSITS OBSERVED AT E             |                                                    |                    |                  |                           | TRANSITS OBSERVED AT W           |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of W Clock | Corrns. for Persl. Equations $H_N - H_S = +0^s.031$<br>$S_N - S_S = -0^s.017$ |
|                                                                                                                        |               |             | By Heaviside, with Telescope No. 1 |                                                    |                    |                  |                           | By Strahan, with Telescope No. 2 |                                                     |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                               |
|                                                                                                                        | B A.C. Number | Declination | Star's Aspect                      | In-strumental Position and Correction (Constants)  | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                    | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                | $\delta L_N + \rho$                                                           |
| 1883                                                                                                                   |               | ° ' "       |                                    |                                                    | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                  |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                               |
| Dec. 30                                                                                                                | 2161          | + 29 5      | N                                  | <i>I. P. E.</i>                                    | 6 27 29.70         | + 1.90           | 31.60                     | N                                | <i>I. P. E.</i>                                     | 6 31 44.51         | + 1.50           | 46.01                     | 4 14.41                               |               |                                |                                                                               |
|                                                                                                                        | 2194          | + 25 15     | N                                  | <i>d</i>                                           | 33 15.76           | + 1.90           | 17.66                     | N                                | <i>d</i>                                            | 37 30.54           | + 1.48           | 32.02                     | 14.36                                 |               |                                |                                                                               |
|                                                                                                                        | 2238          | + 23 44     | N                                  | <i>c + 0.7</i><br><i>b - 1.0</i><br><i>a - 5.0</i> | 41 25.47           | + 1.90           | 27.37                     | N                                | <i>c - 1.5</i><br><i>b + 1.7</i><br><i>a - 9.7</i>  | 45 40.27           | + 1.48           | 41.75                     | 14.38                                 | <i>m s</i>    |                                |                                                                               |
|                                                                                                                        | 2206          | + 13 1      | S                                  | <i>Q + 1.89</i>                                    | 35 14.63           | + 1.88           | 16.51                     | S                                | <i>Q + 1.47</i>                                     | 39 29.54           | + 1.44           | 30.98                     | 14.47                                 | 4 14.424      | 0.027                          | 0.019                                                                         |
|                                                                                                                        | 2255          | + 13 19     | S                                  |                                                    | 44 33.96           | + 1.88           | 35.84                     | S                                |                                                     | 48 48.89           | + 1.45           | 50.34                     | 14.50                                 |               |                                | 4 14.378                                                                      |
| Dec. 30                                                                                                                | 2200          | + 24 23     | N                                  | <i>I. P. E.</i>                                    | 6 51 52.56         | - 1.88           | 50.68                     | N                                | <i>I. P. E.</i>                                     | 6 56 6.54          | - 1.46           | 5.08                      | 4 14.40                               |               |                                |                                                                               |
|                                                                                                                        | 2313          | + 22 48     | N                                  | <i>d</i>                                           | 54 51.25           | - 1.88           | 49.37                     | N                                | <i>d</i>                                            | 59 5.23            | - 1.47           | 3.76                      | 14.39                                 |               |                                |                                                                               |
|                                                                                                                        | 2340          | + 30 26     | N                                  | <i>c + 0.7</i><br><i>b - 1.0</i><br><i>a - 5.0</i> | 7 0 17.42          | - 1.88           | 15.54                     | N                                | <i>c - 1.5</i><br><i>b + 1.7</i><br><i>a - 9.7</i>  | 7 4 31.31          | - 1.43           | 29.88                     | 14.34                                 | 4 14.418      | 0.027                          | 0.024                                                                         |
|                                                                                                                        | 2322          | + 9 21      | S                                  | <i>s</i>                                           | 6 55 49.58         | - 1.91           | 47.67                     | S                                | <i>s</i>                                            | 0 3.69             | - 1.51           | 2.18                      | 14.51                                 | <i>m s</i>    |                                |                                                                               |
|                                                                                                                        | 2330          | + 16 7      | S                                  | <i>Q - 1.89</i>                                    | 58 14.73           | - 1.90           | 12.83                     | S                                | <i>Q - 1.47</i>                                     | 2 28.70            | - 1.50           | 27.20                     | 14.37                                 | 4 14.418      |                                |                                                                               |
|                                                                                                                        | 2354          | - 0 7       | S                                  |                                                    | 7 1 59.69          | - 1.93           | 57.76                     | S                                |                                                     | 6 13.80            | - 1.54           | 12.26                     | 14.50                                 |               |                                | 4 14.367                                                                      |
| 1884                                                                                                                   |               |             |                                    |                                                    |                    |                  |                           |                                  |                                                     |                    |                  |                           |                                       |               |                                |                                                                               |
| Jan. 2                                                                                                                 | 2161          | + 29 5      | N                                  | <i>I. P. W.</i>                                    | 6 27 58.13         | + 1.82           | 59.95                     | N                                | <i>I. P. E.</i>                                     | 6 32 12.83         | + 1.46           | 14.29                     | 4 14.34                               |               |                                |                                                                               |
|                                                                                                                        | 2194          | + 25 15     | N                                  | <i>d</i>                                           | 33 44.15           | + 1.81           | 45.96                     | N                                | <i>d</i>                                            | 37 58.89           | + 1.44           | 60.33                     | 14.37                                 |               |                                |                                                                               |
|                                                                                                                        | 2238          | + 23 44     | N                                  | <i>c - 1.7</i><br><i>b - 2.1</i><br><i>a - 5.9</i> | 41 53.90           | + 1.81           | 55.71                     | N                                | <i>c - 1.7</i><br><i>b - 1.4</i><br><i>a - 17.3</i> | 46 8.65            | + 1.43           | 10.08                     | 14.37                                 | 4 14.368      | 0.027                          | 0.024                                                                         |
|                                                                                                                        | 2173          | + 19 46     | S                                  | <i>s</i>                                           | 30 7.32            | + 1.80           | 9.12                      | S                                | <i>s</i>                                            | 34 22.08           | + 1.40           | 23.48                     | 14.36                                 | <i>m s</i>    |                                |                                                                               |
|                                                                                                                        | 2206          | + 13 1      | S                                  | <i>Q + 1.89</i>                                    | 35 43.08           | + 1.78           | 44.86                     | S                                | <i>Q + 1.49</i>                                     | 39 57.89           | + 1.36           | 59.25                     | 14.39                                 | 4 14.368      |                                |                                                                               |
|                                                                                                                        | 2255          | + 13 19     | S                                  |                                                    | 45 2.41            | + 1.78           | 4.19                      | S                                |                                                     | 49 17.21           | + 1.36           | 18.57                     | 14.38                                 |               |                                | 4 14.317                                                                      |
| Jan. 2                                                                                                                 | 2299          | + 24 23     | N                                  | <i>I. P. W.</i>                                    | 6 52 21.04         | - 1.97           | 19.07                     | N                                | <i>I. P. E.</i>                                     | 6 56 34.97         | - 1.54           | 33.43                     | 4 14.36                               |               |                                |                                                                               |
|                                                                                                                        | 2313          | + 22 48     | N                                  | <i>d</i>                                           | 55 19.72           | - 1.97           | 17.75                     | N                                | <i>d</i>                                            | 59 33.61           | - 1.56           | 32.05                     | 14.30                                 |               |                                |                                                                               |
|                                                                                                                        | 2340          | + 30 26     | N                                  | <i>c - 1.7</i><br><i>b - 2.1</i><br><i>a - 5.9</i> | 7 0 45.77          | - 1.95           | 43.82                     | N                                | <i>c - 1.7</i><br><i>b - 1.4</i><br><i>a - 17.3</i> | 7 4 59.69          | - 1.51           | 58.18                     | 14.36                                 | 4 14.360      | 0.027                          | 0.024                                                                         |
|                                                                                                                        | 2322          | + 9 21      | S                                  | <i>s</i>                                           | 6 56 18.04         | - 2.01           | 16.03                     | S                                | <i>s</i>                                            | 0 32.11            | - 1.65           | 30.46                     | 14.43                                 | <i>m s</i>    |                                |                                                                               |
|                                                                                                                        | 2330          | + 16 7      | S                                  | <i>Q - 1.89</i>                                    | 58 43.12           | - 1.99           | 41.13                     | S                                | <i>Q - 1.49</i>                                     | 2 57.14            | - 1.60           | 55.54                     | 14.41                                 | 4 14.360      |                                |                                                                               |
|                                                                                                                        | 2354          | - 0 7       | S                                  |                                                    | 7 2 28.19          | - 2.02           | 26.17                     | S                                |                                                     | 6 42.18            | - 1.71           | 40.47                     | 14.30                                 |               |                                | 4 14.309                                                                      |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| AKYAB (E) Lat. 20° S, Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> ; AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31'. |      |         |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                                                      | STAR |         | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0^{\circ}.031$<br>$S_N - S_S = -0^{\circ}.017$ |
|                                                                                                                                                        |      |         | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                             |
| 1884                                                                                                                                                   |      |         |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                             |
| Jan. 3                                                                                                                                                 | 2161 | + 29 5  | N                                                            | <i>I. P. W.</i>                                                 | 6 28 7 <sup>.30</sup>    | +1 <sup>.90</sup>        | 9 <sup>.20</sup>                     | N                                                          | <i>I. P. W.</i>                                                 | 6 32 21 <sup>.69</sup>   | +1 <sup>.47</sup>        | 23 <sup>.16</sup>                    | 4 13 <sup>.96</sup>                         |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2194 | + 25 15 | N                                                            | <i>c - 1<sup>.4</sup></i>                                       | 33 53 <sup>.30</sup>     | +1 <sup>.88</sup>        | 55 <sup>.18</sup>                    | N                                                          | <i>c - 0<sup>.9</sup></i>                                       | 38 7 <sup>.78</sup>      | +1 <sup>.44</sup>        | 9 <sup>.22</sup>                     | 14 <sup>.04</sup>                           |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2238 | + 23 44 | N                                                            | <i>b + 0<sup>.2</sup></i><br><i>a - 6<sup>.4</sup></i>          | 42 3 <sup>.05</sup>      | +1 <sup>.88</sup>        | 4 <sup>.93</sup>                     | N                                                          | <i>b - 1<sup>.2</sup></i><br><i>a - 18<sup>.2</sup></i>         | 46 17 <sup>.50</sup>     | +1 <sup>.43</sup>        | 18 <sup>.93</sup>                    | 14 <sup>.00</sup>                           | <i>s</i>            | 14 <sup>.012</sup>                |                                                                                             |
|                                                                                                                                                        | 2173 | + 19 46 | S                                                            | <i>s</i>                                                        | 30 16 <sup>.49</sup>     | +1 <sup>.87</sup>        | 18 <sup>.36</sup>                    | S                                                          | <i>s</i>                                                        | 34 30 <sup>.94</sup>     | +1 <sup>.40</sup>        | 32 <sup>.34</sup>                    | 13 <sup>.98</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2206 | + 13 1  | S                                                            | <i>Q + 1<sup>.90</sup></i>                                      | 35 52 <sup>.17</sup>     | +1 <sup>.85</sup>        | 54 <sup>.02</sup>                    | S                                                          | <i>Q + 1<sup>.47</sup></i>                                      | 40 6 <sup>.76</sup>      | +1 <sup>.35</sup>        | 8 <sup>.11</sup>                     | 14 <sup>.09</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2255 | + 13 19 | S                                                            |                                                                 | 45 11 <sup>.57</sup>     | +1 <sup>.85</sup>        | 13 <sup>.42</sup>                    | S                                                          |                                                                 | 49 26 <sup>.07</sup>     | +1 <sup>.35</sup>        | 27 <sup>.42</sup>                    | 14 <sup>.00</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
| Jan. 3                                                                                                                                                 | 2299 | + 24 23 | N                                                            | <i>I. P. W.</i>                                                 | 6 52 30 <sup>.24</sup>   | -1 <sup>.92</sup>        | 28 <sup>.32</sup>                    | N                                                          | <i>I. P. W.</i>                                                 | 6 56 43 <sup>.76</sup>   | -1 <sup>.50</sup>        | 42 <sup>.26</sup>                    | 4 13 <sup>.94</sup>                         |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2313 | + 22 48 | N                                                            | <i>c - 1<sup>.4</sup></i>                                       | 55 28 <sup>.93</sup>     | -1 <sup>.92</sup>        | 27 <sup>.01</sup>                    | N                                                          | <i>c - 0<sup>.9</sup></i>                                       | 59 42 <sup>.46</sup>     | -1 <sup>.52</sup>        | 40 <sup>.94</sup>                    | 13 <sup>.93</sup>                           |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2340 | + 30 26 | N                                                            | <i>b + 0<sup>.2</sup></i><br><i>a - 6<sup>.4</sup></i>          | 7 055 <sup>.02</sup>     | -1 <sup>.90</sup>        | 53 <sup>.12</sup>                    | N                                                          | <i>b - 1<sup>.2</sup></i><br><i>a - 18<sup>.2</sup></i>         | 7 5 8 <sup>.54</sup>     | -1 <sup>.45</sup>        | 7 <sup>.09</sup>                     | 13 <sup>.97</sup>                           | <i>s</i>            | 13 <sup>.998</sup>                |                                                                                             |
|                                                                                                                                                        | 2322 | + 9 21  | S                                                            | <i>s</i>                                                        | 6 56 27 <sup>.25</sup>   | -1 <sup>.96</sup>        | 25 <sup>.29</sup>                    | S                                                          | <i>s</i>                                                        | 0 41 <sup>.03</sup>      | -1 <sup>.61</sup>        | 39 <sup>.42</sup>                    | 14 <sup>.13</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2330 | + 16 7  | S                                                            | <i>Q - 1<sup>.90</sup></i>                                      | 58 52 <sup>.36</sup>     | -1 <sup>.94</sup>        | 50 <sup>.42</sup>                    | S                                                          | <i>Q - 1<sup>.47</sup></i>                                      | 3 6 <sup>.01</sup>       | -1 <sup>.57</sup>        | 4 <sup>.44</sup>                     | 14 <sup>.02</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2354 | - 0 7   | S                                                            |                                                                 | 7 2 37 <sup>.37</sup>    | -1 <sup>.98</sup>        | 35 <sup>.39</sup>                    | S                                                          |                                                                 | 6 51 <sup>.06</sup>      | -1 <sup>.67</sup>        | 49 <sup>.39</sup>                    | 14 <sup>.00</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
| Jan. 4                                                                                                                                                 | 2161 | + 29 5  | N                                                            | <i>I. P. E.</i>                                                 | 6 28 16 <sup>.15</sup>   | +1 <sup>.99</sup>        | 18 <sup>.14</sup>                    | N                                                          | <i>I. P. W.</i>                                                 | 6 32 30 <sup>.68</sup>   | +1 <sup>.52</sup>        | 32 <sup>.20</sup>                    | 4 14 <sup>.06</sup>                         |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2194 | + 25 15 | N                                                            | <i>c + 3<sup>.4</sup></i>                                       | 34 2 <sup>.16</sup>      | +1 <sup>.98</sup>        | 4 <sup>.14</sup>                     | N                                                          | <i>c - 0<sup>.8</sup></i>                                       | 38 16 <sup>.77</sup>     | +1 <sup>.48</sup>        | 18 <sup>.25</sup>                    | 14 <sup>.11</sup>                           |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2238 | + 23 44 | N                                                            | <i>b + 0<sup>.2</sup></i><br><i>a + 1<sup>.7</sup></i>          | 42 11 <sup>.95</sup>     | +1 <sup>.98</sup>        | 13 <sup>.93</sup>                    | N                                                          | <i>b - 0<sup>.7</sup></i><br><i>a - 22<sup>.6</sup></i>         | 46 26 <sup>.56</sup>     | +1 <sup>.46</sup>        | 28 <sup>.02</sup>                    | 14 <sup>.09</sup>                           | <i>s</i>            | 14 <sup>.108</sup>                |                                                                                             |
|                                                                                                                                                        | 2173 | + 19 46 | S                                                            | <i>s</i>                                                        | 30 25 <sup>.32</sup>     | +1 <sup>.98</sup>        | 27 <sup>.30</sup>                    | S                                                          | <i>s</i>                                                        | 34 39 <sup>.96</sup>     | +1 <sup>.43</sup>        | 41 <sup>.39</sup>                    | 14 <sup>.09</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2206 | + 13 1  | S                                                            | <i>Q + 1<sup>.90</sup></i>                                      | 36 0 <sup>.99</sup>      | +1 <sup>.98</sup>        | 2 <sup>.97</sup>                     | S                                                          | <i>Q + 1<sup>.49</sup></i>                                      | 40 15 <sup>.80</sup>     | +1 <sup>.37</sup>        | 17 <sup>.17</sup>                    | 14 <sup>.20</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2255 | + 13 19 | S                                                            |                                                                 | 45 20 <sup>.44</sup>     | +1 <sup>.98</sup>        | 22 <sup>.42</sup>                    | S                                                          |                                                                 | 49 35 <sup>.15</sup>     | +1 <sup>.37</sup>        | 36 <sup>.52</sup>                    | 14 <sup>.10</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
| Jan. 4                                                                                                                                                 | 2299 | + 24 23 | N                                                            | <i>I. P. E.</i>                                                 | 6 52 38 <sup>.98</sup>   | -1 <sup>.82</sup>        | 37 <sup>.16</sup>                    | N                                                          | <i>I. P. W.</i>                                                 | 6 56 52 <sup>.80</sup>   | -1 <sup>.51</sup>        | 51 <sup>.29</sup>                    | 4 14 <sup>.13</sup>                         |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2313 | + 22 48 | N                                                            | <i>c + 3<sup>.4</sup></i>                                       | 55 37 <sup>.73</sup>     | -1 <sup>.82</sup>        | 35 <sup>.91</sup>                    | N                                                          | <i>c - 0<sup>.8</sup></i>                                       | 59 51 <sup>.46</sup>     | -1 <sup>.53</sup>        | 49 <sup>.93</sup>                    | 14 <sup>.02</sup>                           |                     |                                   |                                                                                             |
|                                                                                                                                                        | 2340 | + 30 26 | N                                                            | <i>b + 0<sup>.2</sup></i><br><i>a + 1<sup>.7</sup></i>          | 7 1 3 <sup>.83</sup>     | -1 <sup>.81</sup>        | 2 <sup>.02</sup>                     | N                                                          | <i>b - 0<sup>.7</sup></i><br><i>a - 22<sup>.6</sup></i>         | 7 5 17 <sup>.51</sup>    | -1 <sup>.45</sup>        | 16 <sup>.06</sup>                    | 14 <sup>.04</sup>                           | <i>s</i>            | 14 <sup>.103</sup>                |                                                                                             |
|                                                                                                                                                        | 2322 | + 9 21  | S                                                            | <i>s</i>                                                        | 6 56 36 <sup>.04</sup>   | -1 <sup>.81</sup>        | 34 <sup>.23</sup>                    | S                                                          | <i>s</i>                                                        | 0 50 <sup>.00</sup>      | -1 <sup>.65</sup>        | 48 <sup>.35</sup>                    | 14 <sup>.12</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2330 | + 16 7  | S                                                            | <i>Q - 1<sup>.90</sup></i>                                      | 58 61 <sup>.09</sup>     | -1 <sup>.82</sup>        | 59 <sup>.27</sup>                    | S                                                          | <i>Q - 1<sup>.49</sup></i>                                      | 3 15 <sup>.00</sup>      | -1 <sup>.59</sup>        | 13 <sup>.41</sup>                    | 14 <sup>.14</sup>                           | <i>m</i>            | 4                                 |                                                                                             |
|                                                                                                                                                        | 2354 | - 0 7   | S                                                            |                                                                 | 7 2 46 <sup>.09</sup>    | -1 <sup>.81</sup>        | 44 <sup>.28</sup>                    | S                                                          |                                                                 | 6 60 <sup>.16</sup>      | -1 <sup>.71</sup>        | 58 <sup>.45</sup>                    | 14 <sup>.17</sup>                           | <i>m</i>            | 4                                 |                                                                                             |

NOTE.—1<sup>d</sup> = 0<sup>.0225. Transcribing Equation #12, all records having been transcribed by the same person.</sup>\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ : AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |                  |             |                                                               |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                    |
|------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                      | STAR             |             | TRANSITS OBSERVED AT E<br>By Heavinside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns. for Peral. Equations<br>$H_N - H_S = + 0^s.019$<br>$S_N - S_S = - 0^s.007$ |
|                                                                                                                        | B.A.C.<br>Number | Declination | Star's Aspect                                                 | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                    |
| 1884                                                                                                                   |                  | ° ' "       |                                                               |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                    |
| Jan. 21                                                                                                                | 2504             | + 35 18     | N                                                             | <i>I. P. W.</i>                                                 | 7 30 34.26               | +1.61                    | 35.87                                | N                                                          | <i>I. P. W.</i>                                                 | 7 44 4.37                | +1.66                    | 6.03                                 | 13 30.16                                    |                     |                                   |                                                                                    |
|                                                                                                                        | 2549             | + 26 4      | N                                                             | <i>d</i>                                                        | 36 40.63                 | +1.48                    | 42.11                                | N                                                          | <i>d</i>                                                        | 36 10.67                 | +1.60                    | 12.27                                | 30.16                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2563             | + 33 43     | N                                                             | <i>c + 1.0</i><br><i>b - 4.1</i><br><i>a - 29.4</i>             | 39 39.83                 | +1.58                    | 41.41                                | N                                                          | <i>c - 0.6</i><br><i>b + 0.6</i><br><i>a - 12.4</i>             | 53 9.96                  | +1.65                    | 11.61                                | 30.20                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2519             | + 17 56     | S                                                             | <i>s</i>                                                        | 32 24.90                 | +1.37                    | 26.27                                | S                                                          | <i>s</i>                                                        | 45 54.92                 | +1.56                    | 56.48                                | 30.21                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2526             | + 5 30      | S                                                             | <i>Q + 1.46</i>                                                 | 33 35.61                 | +1.24                    | 36.85                                | S                                                          | <i>Q + 1.58</i>                                                 | 47 5.57                  | +1.50                    | 7.07                                 | 30.22                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2537             | + 13 46     | S                                                             |                                                                 | 34 59.86                 | +1.33                    | 61.19                                | S                                                          |                                                                 | 48 29.85                 | +1.54                    | 31.39                                | 30.20                                       |                     |                                   |                                                                                    |
| Jan. 21                                                                                                                | 2617             | + 27 4      | N                                                             | <i>I. P. W.</i>                                                 | 7 46 4.90                | -1.42                    | 3.48                                 | N                                                          | <i>I. P. W.</i>                                                 | 7 59 35.28               | -1.55                    | 33.73                                | 13 30.25                                    |                     |                                   |                                                                                    |
|                                                                                                                        | 2657             | + 25 43     | N                                                             | <i>d</i>                                                        | 53 35.75                 | -1.45                    | 34.30                                | N                                                          | <i>d</i>                                                        | 8 7 6.11                 | -1.56                    | 4.55                                 | 30.25                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2636             | + 9 10      | S                                                             | <i>c + 1.0</i><br><i>b - 4.1</i><br><i>a - 29.4</i>             | 48 54.58                 | -1.64                    | 52.94                                | S                                                          | <i>c - 0.6</i><br><i>b + 0.6</i><br><i>a - 12.4</i>             | 2 24.75                  | -1.64                    | 23.11                                | 30.17                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 2619             | + 16 50     | S                                                             | <i>s</i>                                                        | 51 35.60                 | -1.56                    | 34.04                                | S                                                          | <i>s</i>                                                        | 5 5.81                   | -1.61                    | 4.20                                 | 30.16                                       |                     |                                   |                                                                                    |
|                                                                                                                        |                  |             |                                                               | <i>Q - 1.46</i>                                                 |                          |                          |                                      |                                                            | <i>Q - 1.58</i>                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                    |
| Jan. 21                                                                                                                | 3117             | + 22 31     | N                                                             | <i>I. P. E.</i>                                                 | 9 21 9.39                | +1.27                    | 20.66                                | N                                                          | <i>I. P. W.</i>                                                 | 9 15 49.46               | +1.58                    | 51.04                                | 13 30.38                                    |                     |                                   |                                                                                    |
|                                                                                                                        | 3123             | + 22 28     | N                                                             | <i>d</i>                                                        | 3 19.00                  | +1.27                    | 20.27                                | N                                                          | <i>d</i>                                                        | 16 49.04                 | +1.58                    | 50.62                                | 30.35                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3144             | + 35 7      | N                                                             | <i>c - 3.7</i><br><i>b - 5.9</i><br><i>a - 28.1</i>             | 7 44.90                  | +1.42                    | 46.32                                | N                                                          | <i>c - 0.6</i><br><i>b + 0.6</i><br><i>a - 12.4</i>             | 21 14.89                 | +1.66                    | 16.55                                | 30.23                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3132             | + 15 27     | S                                                             | <i>s</i>                                                        | 5 34.74                  | +1.19                    | 35.93                                | S                                                          | <i>s</i>                                                        | 19 4.77                  | +1.55                    | 6.32                                 | 30.39                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3171             | + 18 12     | S                                                             | <i>Q + 1.46</i>                                                 | 12 8.35                  | +1.22                    | 9.57                                 | S                                                          | <i>Q + 1.58</i>                                                 | 25 38.42                 | +1.56                    | 39.98                                | 30.41                                       |                     |                                   |                                                                                    |
| Jan. 21                                                                                                                | 3194             | + 25 41     | N                                                             | <i>I. P. E.</i>                                                 | 9 16 29.81               | -1.62                    | 28.19                                | N                                                          | <i>I. P. W.</i>                                                 | 9 29 60.19               | -1.56                    | 58.63                                | 13 30.44                                    |                     |                                   |                                                                                    |
|                                                                                                                        | 3204             | + 26 41     | N                                                             | <i>d</i>                                                        | 17 34.65                 | -1.60                    | 33.05                                | N                                                          | <i>d</i>                                                        | 31 4.98                  | -1.56                    | 3.42                                 | 30.37                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3238             | + 34 10     | N                                                             | <i>c - 3.7</i><br><i>b - 5.9</i><br><i>a - 28.1</i>             | 23 23.24                 | -1.52                    | 21.72                                | N                                                          | <i>c - 0.6</i><br><i>b + 0.6</i><br><i>a - 12.4</i>             | 36 53.62                 | -1.51                    | 52.11                                | 30.39                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3216             | - 4 37      | S                                                             | <i>s</i>                                                        | 19 17.11                 | -1.91                    | 15.20                                | S                                                          | <i>s</i>                                                        | 32 47.39                 | -1.71                    | 45.68                                | 30.48                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3227             | + 9 34      | S                                                             | <i>Q - 1.46</i>                                                 | 21 55.53                 | -1.77                    | 53.76                                | S                                                          | <i>Q - 1.58</i>                                                 | 35 25.94                 | -1.64                    | 24.30                                | 30.54                                       |                     |                                   |                                                                                    |
|                                                                                                                        | 3250             | + 11 49     | S                                                             |                                                                 | 25 22.45                 | -1.76                    | 20.69                                | S                                                          |                                                                 | 38 52.78                 | -1.63                    | 51.15                                | 30.46                                       |                     |                                   |                                                                                    |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation #12, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^\circ 48'$ , Long. $6^h 21^m 3^s$ ; AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |                  |             |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                             |                     |
|------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                      | STAR             |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0.019$<br>$S_N - S_S = -0.007$ | $\delta L_N - \rho$ |
|                                                                                                                        | B.A.C.<br>Number | Declination | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                             |                     |
| 1884                                                                                                                   |                  | ° ' "       |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                             |                     |
| Jan. 22                                                                                                                | 2504             | + 35 18     | N                                                            | <i>I. P. E.</i>                                                 | 7 30 32.11               | +1.68                    | 33.79                                | N                                                          | <i>I. P. E.</i>                                                 | 7 44 2.48                | +1.95                    | 4.43                                 | 13 30.64                                    |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2549             | + 26 4      | N                                                            | <i>c + 0.4</i><br><i>d</i>                                      | 36 38.46                 | +1.52                    | 39.98                                | N                                                          | <i>c - 2.4</i><br><i>d</i>                                      | 50 8.83                  | +1.73                    | 10.56                                | 30.58                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2519             | + 17 56     | S                                                            | <i>b - 3.6</i><br><i>a - 37.7</i>                               | 32 22.74                 | +1.39                    | 24.13                                | S                                                          | <i>b + 5.3</i><br><i>a - 46.3</i>                               | 45 53.16                 | +1.58                    | 54.74                                | 30.61                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2526             | + 5 30      | S                                                            | <i>s</i>                                                        | 33 33.44                 | +1.21                    | 34.65                                | S                                                          | <i>s</i>                                                        | 47 3.97                  | +1.34                    | 5.31                                 | 30.66                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2537             | + 13 46     | S                                                            | <i>Q + 1.48</i>                                                 | 34 57.66                 | +1.33                    | 58.99                                | S                                                          | <i>Q + 1.59</i>                                                 | 48 28.16                 | +1.49                    | 29.65                                | 30.66                                       |                     |                                   |                                                                             |                     |
| Jan. 22                                                                                                                | 2586             | + 28 29     | N                                                            | <i>I. P. E.</i>                                                 | 7 42 24.83               | -1.40                    | 23.43                                | N                                                          | <i>I. P. E.</i>                                                 | 7 55 55.48               | -1.38                    | 54.10                                | 13 30.67                                    |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2617             | + 27 4      | N                                                            | <i>c + 0.4</i><br><i>d</i>                                      | 46 2.82                  | -1.42                    | 1.40                                 | N                                                          | <i>c - 2.4</i><br><i>d</i>                                      | 59 33.44                 | -1.42                    | 32.02                                | 30.62                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2657             | + 25 43     | N                                                            | <i>b - 3.6</i><br><i>a - 37.7</i>                               | 53 33.75                 | -1.45                    | 32.30                                | N                                                          | <i>b + 5.3</i><br><i>a - 46.3</i>                               | 8 7 4.31                 | -1.45                    | 2.86                                 | 30.56                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2605             | + 19 37     | S                                                            | <i>s</i>                                                        | 44 50.98                 | -1.55                    | 49.43                                | S                                                          | <i>s</i>                                                        | 7 58 21.67               | -1.58                    | 20.09                                | 30.66                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2636             | + 9 10      | S                                                            | <i>Q - 1.48</i>                                                 | 48 52.33                 | -1.69                    | 50.64                                | S                                                          | <i>Q - 1.59</i>                                                 | 8 2 23.15                | -1.76                    | 21.39                                | 30.75                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 2649             | + 16 50     | S                                                            |                                                                 | 51 33.38                 | -1.58                    | 31.80                                | S                                                          |                                                                 | 5 4.11                   | -1.64                    | 2.47                                 | 30.67                                       |                     |                                   |                                                                             |                     |
| Jan. 22                                                                                                                | 3117             | + 22 31     | N                                                            | <i>I. P. W.</i>                                                 | 9 2 17.53                | +1.21                    | 18.74                                | N                                                          | <i>I. P. E.</i>                                                 | 9 15 47.54               | +1.66                    | 49.20                                | 13 30.46                                    |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3123             | + 22 28     | N                                                            | <i>c - 6.2</i><br><i>d</i>                                      | 3 17.07                  | +1.21                    | 18.28                                | N                                                          | <i>c - 2.4</i><br><i>d</i>                                      | 16 47.11                 | +1.66                    | 48.77                                | 30.49                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3144             | + 35 7      | N                                                            | <i>b - 6.0</i><br><i>a - 22.3</i>                               | 7 43.02                  | +1.32                    | 44.34                                | N                                                          | <i>b + 5.3</i><br><i>a - 46.3</i>                               | 21 12.84                 | +1.94                    | 14.78                                | 30.44                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3132             | + 15 27     | S                                                            | <i>s</i>                                                        | 5 32.83                  | +1.17                    | 34.00                                | S                                                          | <i>s</i>                                                        | 19 2.97                  | +1.52                    | 4.49                                 | 30.49                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3160             | - 5 52      | S                                                            | <i>Q + 1.48</i>                                                 | 10 32.43                 | +1.01                    | 33.44                                | S                                                          | <i>Q + 1.59</i>                                                 | 24 2.81                  | +1.15                    | 3.96                                 | 30.52                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3171             | + 18 12     | S                                                            |                                                                 | 12 6.47                  | +1.19                    | 7.66                                 | S                                                          |                                                                 | 25 36.65                 | +1.58                    | 38.23                                | 30.57                                       |                     |                                   |                                                                             |                     |
| Jan. 22                                                                                                                | 3194             | + 25 41     | N                                                            | <i>I. P. W.</i>                                                 | 9 16 28.05               | -1.72                    | 26.33                                | N                                                          | <i>I. P. E.</i>                                                 | 9 29 58.29               | -1.45                    | 56.84                                | 13 30.51                                    |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3204             | + 26 41     | N                                                            | <i>c - 6.2</i><br><i>d</i>                                      | 17 32.84                 | -1.71                    | 31.13                                | N                                                          | <i>c - 2.4</i><br><i>d</i>                                      | 31 3.11                  | -1.43                    | 1.68                                 | 30.55                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3238             | + 34 10     | N                                                            | <i>b - 6.0</i><br><i>a - 22.3</i>                               | 23 21.49                 | -1.65                    | 19.84                                | N                                                          | <i>b + 5.3</i><br><i>a - 46.3</i>                               | 36 51.56                 | -1.26                    | 50.30                                | 30.46                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3216             | - 4 37      | S                                                            | <i>s</i>                                                        | 19 15.31                 | -1.94                    | 13.37                                | S                                                          | <i>s</i>                                                        | 32 45.82                 | -2.00                    | 43.82                                | 30.45                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3227             | + 9 34      | S                                                            | <i>Q - 1.48</i>                                                 | 21 53.79                 | -1.84                    | 51.95                                | S                                                          | <i>Q - 1.59</i>                                                 | 35 24.14                 | -1.76                    | 22.38                                | 30.43                                       |                     |                                   |                                                                             |                     |
|                                                                                                                        | 3250             | + 11 49     | S                                                            |                                                                 | 25 20.68                 | -1.82                    | 18.86                                | S                                                          |                                                                 | 38 51.03                 | -1.72                    | 49.31                                | 30.45                                       |                     |                                   |                                                                             |                     |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation #1, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ : AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |               |             |                                                                     |                                                 |                    |                  |                           |                                                                   |                                                 |                    |                  |                           |                                             |               |                                   |                                                                                   |                     |
|------------------------------------------------------------------------------------------------------------------------|---------------|-------------|---------------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|-------------------------------------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------------|---------------|-----------------------------------|-----------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                      | STAR          |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                 |                    |                  |                           | Difference of<br>Corrected Times<br>(W - E) |               | Correction for Rate of<br>E Clock | Corrs. for Peral. Equations<br>$H_N - H_E = + 0^s.019$<br>$S_N - S_E = - 0^s.007$ | $\delta L_N - \rho$ |
|                                                                                                                        | B.A.C. Number | Declination | Star's Aspect                                                       | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                                                     | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | By each Star                                | Mean of Group |                                   |                                                                                   |                     |
| 1884                                                                                                                   |               | ° ' "       |                                                                     |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                                                   |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                                  |               |                                   |                                                                                   |                     |
| Jan. 23                                                                                                                | 2504          | + 35 18     | N                                                                   | <i>I. P. W.</i>                                 | 7 30 30.66         | + 1.05           | 31.71                     | N                                                                 | <i>I. P. W.</i>                                 | 7 44 0.19          | + 1.99           | 2.18                      | 13 30.47                                    |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2549          | + 26 4      | N                                                                   | <i>c - 2.8</i>                                  | 36 36.83           | + 1.12           | 37.95                     | N                                                                 | <i>c + 0.7</i>                                  | 50 6.58            | + 1.76           | 8.34                      | 30.39                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2503          | + 33 43     | N                                                                   | <i>b - 6.1</i><br><i>a + 11.4</i>               | 39 36.29           | + 1.06           | 37.35                     | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>               | 53 5.74            | + 1.94           | 7.68                      | 30.33                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2510          | + 17 56     | S                                                                   | <i>Q + 1.38</i>                                 | 32 20.97           | + 1.17           | 22.14                     | S                                                                 | <i>Q + 1.59</i>                                 | 45 50.96           | + 1.59           | 52.55                     | 30.41                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2526          | + 5 30      | S                                                                   |                                                 | 33 31.47           | + 1.25           | 32.72                     | S                                                                 |                                                 | 47 1.77            | + 1.35           | 3.12                      | 30.40                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2537          | + 13 46     | S                                                                   |                                                 | 34 55.86           | + 1.20           | 57.06                     | S                                                                 |                                                 | 48 25.87           | + 1.50           | 27.37                     | 30.31                                       |               |                                   |                                                                                   |                     |
| Jan. 23                                                                                                                | 2586          | + 28 29     | N                                                                   | <i>I. P. W.</i>                                 | 7 42 23.14         | - 1.65           | 21.49                     | N                                                                 | <i>I. P. W.</i>                                 | 7 55 53.24         | - 1.37           | 51.87                     | 13 30.38                                    |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2617          | + 27 4      | N                                                                   | <i>c - 2.8</i>                                  | 45 61.06           | - 1.64           | 59.42                     | N                                                                 | <i>c + 0.7</i>                                  | 59 31.18           | - 1.40           | 29.78                     | 30.36                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2657          | + 25 43     | N                                                                   | <i>b - 6.1</i><br><i>a + 11.4</i>               | 53 31.88           | - 1.63           | 30.25                     | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>               | 8 7 2.06           | - 1.43           | 0.63                      | 30.38                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2005          | + 19 37     | S                                                                   | <i>Q - 1.38</i>                                 | 44 49.06           | - 1.60           | 47.46                     | S                                                                 | <i>Q - 1.59</i>                                 | 7 58 19.39         | - 1.56           | 17.83                     | 30.37                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2636          | + 9 10      | S                                                                   |                                                 | 48 50.31           | - 1.54           | 48.77                     | S                                                                 |                                                 | 8 2 20.90          | - 1.76           | 19.14                     | 30.37                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 2640          | + 16 50     | S                                                                   |                                                 | 51 31.36           | - 1.58           | 29.78                     | S                                                                 |                                                 | 5 1.86             | - 1.61           | 0.25                      | 30.47                                       |               |                                   |                                                                                   |                     |
| Jan. 23                                                                                                                | 8117          | + 22 31     | N                                                                   | <i>I. P. E.</i>                                 | 9 2 15.40          | + 1.32           | 16.72                     | N                                                                 | <i>I. P. W.</i>                                 | 9 15 45.36         | + 1.68           | 47.04                     | 13 30.32                                    |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8123          | + 22 28     | N                                                                   | <i>c + 0.9</i>                                  | 3 15.00            | + 1.32           | 16.32                     | N                                                                 | <i>c + 0.7</i>                                  | 16 44.92           | + 1.68           | 46.60                     | 30.28                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8144          | + 35 7      | N                                                                   | <i>b - 3.5</i><br><i>a - 5.1</i>                | 7 41.05            | + 1.35           | 42.40                     | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>               | 21 10.62           | + 1.98           | 12.60                     | 30.20                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8132          | + 15 27     | S                                                                   | <i>Q + 1.38</i>                                 | 5 30.64            | + 1.31           | 31.95                     | S                                                                 | <i>Q + 1.59</i>                                 | 19 0.81            | + 1.54           | 2.35                      | 30.40                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8160          | - 5 52      | S                                                                   |                                                 | 10 30.00           | + 1.28           | 31.28                     | S                                                                 |                                                 | 24 0.64            | + 1.16           | 1.80                      | 30.52                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8171          | + 18 12     | S                                                                   |                                                 | 12 4.36            | + 1.32           | 5.68                      | S                                                                 |                                                 | 25 34.43           | + 1.60           | 36.03                     | 30.35                                       |               |                                   |                                                                                   |                     |
| Jan. 23                                                                                                                | 8194          | + 25 41     | N                                                                   | <i>I. P. E.</i>                                 | 9 16 25.74         | - 1.43           | 24.31                     | N                                                                 | <i>I. P. W.</i>                                 | 9 29 56.09         | - 1.43           | 54.66                     | 13 30.35                                    |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8204          | + 26 41     | N                                                                   | <i>c + 0.9</i>                                  | 17 30.59           | - 1.43           | 29.16                     | N                                                                 | <i>c + 0.7</i>                                  | 30 60.88           | - 1.41           | 59.47                     | 30.31                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8238          | + 34 10     | N                                                                   | <i>b - 3.5</i><br><i>a - 5.1</i>                | 23 19.34           | - 1.41           | 17.93                     | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>               | 36 49.29           | - 1.23           | 48.06                     | 30.13                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8216          | - 4 37      | S                                                                   | <i>Q - 1.38</i>                                 | 19 12.65           | - 1.48           | 11.17                     | S                                                                 | <i>Q - 1.59</i>                                 | 32 43.64           | - 2.00           | 41.64                     | 30.47                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8227          | + 9 34      | S                                                                   |                                                 | 21 51.27           | - 1.46           | 49.81                     | S                                                                 |                                                 | 35 21.99           | - 1.76           | 20.23                     | 30.42                                       |               |                                   |                                                                                   |                     |
|                                                                                                                        | 8250          | + 11 49     | S                                                                   |                                                 | 25 18.18           | - 1.45           | 16.73                     | S                                                                 |                                                 | 38 48.81           | - 1.71           | 47.10                     | 30.37                                       |               |                                   |                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation  $\delta L$ , all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .

| PROME (E) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 2^s$ ; AND CHITTAGONG (W) Lat. $23^{\circ} 20'$ , Long. $6^h 7^m 31^s$ . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|
| Astronomical Date                                                                                                          | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns for Persl. Equations<br>$H_N - H_S = + 0^s.019$<br>$S_N - S_S = - 0^s.007$ |
|                                                                                                                            | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |
| 1884                                                                                                                       |                  | ° '              |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                   |
| Jan. 24                                                                                                                    | 2504             | + 35 18          | N                                                                   | <i>I. P. E.</i>                                                 | 7 30 27.79               | + 1.64                   | 29.43                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 43 58.08               | + 2.04                   | 60.12                                | 13 30.69                                    |                     |                                   |                                                                                   |
|                                                                                                                            | 2549             | + 26 4           | N                                                                   | <i>d</i>                                                        | 36 34.14                 | + 1.56                   | 35.70                                | N                                                                 | <i>d</i>                                                        | 50 4.48                  | + 1.83                   | 6.31                                 | 30.61                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2563             | + 33 43          | N                                                                   | <i>a + 0.1</i><br><i>b + 5.1</i><br><i>a - 14.3</i>             | 39 33.47                 | + 1.62                   | 35.09                                | N                                                                 | <i>a - 2.1</i><br><i>b + 7.6</i><br><i>a - 47.3</i>             | 53 3.58                  | + 2.01                   | 5.59                                 | 30.50                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2519             | + 17 56          | S                                                                   | <i>s</i>                                                        | 32 18.32                 | + 1.51                   | 19.83                                | S                                                                 | <i>s</i>                                                        | 45 48.83                 | + 1.65                   | 50.48                                | 30.65                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2526             | + 5 30           | S                                                                   | <i>Q + 1.39</i>                                                 | 33 28.98                 | + 1.43                   | 30.41                                | S                                                                 | <i>Q + 1.61</i>                                                 | 46 59.68                 | + 1.41                   | 61.09                                | 30.68                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2537             | + 13 46          | S                                                                   |                                                                 | 34 53.24                 | + 1.48                   | 54.72                                | S                                                                 |                                                                 | 48 23.80                 | + 1.56                   | 25.36                                | 30.64                                       |                     |                                   |                                                                                   |
| Jan. 24                                                                                                                    | 2586             | + 28 29          | N                                                                   | <i>I. P. E.</i>                                                 | 7 42 20.36               | - 1.20                   | 19.16                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 55 51.10               | - 1.34                   | 40.76                                | 13 30.60                                    |                     |                                   |                                                                                   |
|                                                                                                                            | 2617             | + 27 4           | N                                                                   | <i>d</i>                                                        | 45 58.39                 | - 1.21                   | 57.18                                | N                                                                 | <i>d</i>                                                        | 59 29.12                 | - 1.37                   | 27.75                                | 30.57                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2657             | + 25 43          | N                                                                   | <i>a + 0.1</i><br><i>b + 5.1</i><br><i>a - 14.3</i>             | 53 29.22                 | - 1.22                   | 28.00                                | N                                                                 | <i>a - 2.1</i><br><i>b + 7.6</i><br><i>a - 47.3</i>             | 8 6 59.94                | - 1.40                   | 58.54                                | 30.54                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2605             | + 19 37          | S                                                                   | <i>s</i>                                                        | 44 46.45                 | - 1.27                   | 45.18                                | S                                                                 | <i>s</i>                                                        | 7 58 17.33               | - 1.54                   | 15.79                                | 30.61                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2636             | + 9 10           | S                                                                   | <i>Q - 1.39</i>                                                 | 48 47.79                 | - 1.33                   | 46.46                                | S                                                                 | <i>Q - 1.61</i>                                                 | 8 2 18.85                | - 1.74                   | 17.11                                | 30.65                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 2649             | + 16 50          | S                                                                   |                                                                 | 51 28.85                 | - 1.28                   | 27.57                                | S                                                                 |                                                                 | 4 59.76                  | - 1.59                   | 58.17                                | 30.60                                       |                     |                                   |                                                                                   |
| Jan. 24                                                                                                                    | 3117             | + 22 31          | N                                                                   | <i>I. P. W.</i>                                                 | 9 2 12.97                | + 1.46                   | 14.43                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 15 43.20               | + 1.75                   | 44.95                                | 13 30.52                                    |                     |                                   |                                                                                   |
|                                                                                                                            | 3123             | + 22 28          | N                                                                   | <i>d</i>                                                        | 3 12.58                  | + 1.46                   | 14.04                                | N                                                                 | <i>d</i>                                                        | 16 42.80                 | + 1.75                   | 44.55                                | 30.51                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3144             | + 35 7           | N                                                                   | <i>a - 2.5</i><br><i>b + 4.2</i><br><i>a - 17.6</i>             | 7 38.51                  | + 1.57                   | 40.08                                | N                                                                 | <i>a - 2.1</i><br><i>b + 7.6</i><br><i>a - 47.3</i>             | 21 8.54                  | + 2.04                   | 10.58                                | 30.50                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3132             | + 15 27          | S                                                                   | <i>s</i>                                                        | 5 28.30                  | + 1.41                   | 29.71                                | S                                                                 | <i>s</i>                                                        | 18 58.64                 | + 1.61                   | 60.25                                | 30.54                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3160             | - 5 52           | S                                                                   | <i>Q + 1.39</i>                                                 | 10 27.81                 | + 1.25                   | 29.06                                | S                                                                 | <i>Q + 1.61</i>                                                 | 23 58.47                 | + 1.20                   | 59.67                                | 30.61                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3171             | + 18 12          | S                                                                   |                                                                 | 12 1.95                  | + 1.43                   | 3.38                                 | S                                                                 |                                                                 | 25 32.28                 | + 1.66                   | 33.94                                | 30.56                                       |                     |                                   |                                                                                   |
| Jan. 24                                                                                                                    | 3194             | + 25 41          | N                                                                   | <i>I. P. W.</i>                                                 | 9 16 23.37               | - 1.30                   | 22.07                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 29 53.94               | - 1.40                   | 52.54                                | 13 30.47                                    |                     |                                   |                                                                                   |
|                                                                                                                            | 3204             | + 26 41          | N                                                                   | <i>d</i>                                                        | 17 28.25                 | - 1.29                   | 26.96                                | N                                                                 | <i>d</i>                                                        | 30 58.73                 | - 1.38                   | 57.35                                | 30.39                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3238             | + 34 10          | N                                                                   | <i>a - 2.5</i><br><i>b + 4.2</i><br><i>a - 17.6</i>             | 23 16.87                 | - 1.22                   | 15.65                                | N                                                                 | <i>a - 2.1</i><br><i>b + 7.6</i><br><i>a - 47.3</i>             | 36 47.24                 | - 1.21                   | 46.03                                | 30.38                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3216             | - 4 37           | S                                                                   | <i>s</i>                                                        | 19 10.57                 | - 1.52                   | 9.05                                 | S                                                                 | <i>s</i>                                                        | 32 41.53                 | - 1.99                   | 39.54                                | 30.49                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3227             | + 9 34           | S                                                                   | <i>Q - 1.39</i>                                                 | 21 49.05                 | - 1.43                   | 47.62                                | S                                                                 | <i>Q - 1.61</i>                                                 | 35 19.86                 | - 1.73                   | 18.13                                | 30.51                                       |                     |                                   |                                                                                   |
|                                                                                                                            | 3250             | + 11 49          | S                                                                   |                                                                 | 25 15.96                 | - 1.40                   | 14.56                                | S                                                                 |                                                                 | 38 46.74                 | - 1.69                   | 45.05                                | 30.49                                       |                     |                                   |                                                                                   |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^\circ 21' 2''$ ; AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^\circ 7' 31''$ . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                               |                     |
|------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                            | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Peral. Equations<br>$H_N - H_S = + 0^{\circ}.019$<br>$E_N - E_S = - 0^{\circ}.007$ | $\delta L_N - \rho$ |
|                                                                                                                              | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                               |                     |
| 1884                                                                                                                         |                  | ° '         |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                               |                     |
| Jan. 25                                                                                                                      | 2504             | + 35 18     | N                                                                   | <i>I. P. W.</i>                                                 | 7 30 25.64               | + 1.55                   | 27.19                                | N                                                                 | <i>I. P. W.</i>                                                 | 7 43 55.53               | + 2.03                   | 57.56                                | 13 30.37                                    |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2549             | + 26 4      | N                                                                   | <i>d</i>                                                        | 36 31.99                 | + 1.45                   | 33.44                                | N                                                                 | <i>d</i>                                                        | 50 1.91                  | + 1.78                   | 3.69                                 | 30.25                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2563             | + 33 43     | N                                                                   | <i>c - 3.9</i><br><i>b + 3.1</i><br><i>a - 24.4</i>             | 39 31.16                 | + 1.53                   | 32.69                                | N                                                                 | <i>c + 0.9</i><br><i>b + 3.4</i><br><i>a - 54.5</i>             | 53 1.11                  | + 1.98                   | 3.09                                 | 30.40                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2519             | + 17 56     | S                                                                   | <i>s</i>                                                        | 32 16.17                 | + 1.36                   | 17.53                                | S                                                                 | <i>s</i>                                                        | 45 46.36                 | + 1.58                   | 47.94                                | 30.41                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2526             | + 5 30      | S                                                                   | <i>Q + 1.39</i>                                                 | 33 26.85                 | + 1.24                   | 28.09                                | S                                                                 | <i>Q + 1.58</i>                                                 | 46 57.21                 | + 1.31                   | 58.52                                | 30.43                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2537             | + 13 46     | S                                                                   |                                                                 | 34 51.10                 | + 1.32                   | 52.42                                | S                                                                 |                                                                 | 48 21.29                 | + 1.49                   | 22.78                                | 30.36                                       |                     |                                   |                                                                                               |                     |
| Jan. 25                                                                                                                      | 2586             | + 28 29     | N                                                                   | <i>I. P. W.</i>                                                 | 7 42 18.27               | - 1.31                   | 16.96                                | N                                                                 | <i>I. P. W.</i>                                                 | 7 55 48.60               | - 1.32                   | 47.28                                | 13 30.32                                    |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2617             | + 27 4      | N                                                                   | <i>d</i>                                                        | 45 56.25                 | - 1.32                   | 54.93                                | N                                                                 | <i>d</i>                                                        | 59 26.57                 | - 1.36                   | 25.21                                | 30.28                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2657             | + 25 43     | N                                                                   | <i>c - 3.9</i><br><i>b + 3.1</i><br><i>a - 24.4</i>             | 53 27.09                 | - 1.34                   | 25.75                                | N                                                                 | <i>c + 0.9</i><br><i>b + 3.4</i><br><i>a - 54.5</i>             | 8 6 57.51                | - 1.40                   | 56.11                                | 30.36                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2605             | + 19 37     | S                                                                   | <i>s</i>                                                        | 44 44.30                 | - 1.40                   | 42.90                                | S                                                                 | <i>s</i>                                                        | 7 58 14.79               | - 1.55                   | 13.24                                | 30.34                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2636             | + 9 10      | S                                                                   | <i>Q - 1.39</i>                                                 | 48 45.71                 | - 1.50                   | 44.21                                | S                                                                 | <i>Q - 1.58</i>                                                 | 8 2 16.41                | - 1.76                   | 14.65                                | 30.44                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 2649             | + 16 50     | S                                                                   |                                                                 | 51 26.67                 | - 1.43                   | 25.24                                | S                                                                 |                                                                 | 4 57.32                  | - 1.61                   | 55.71                                | 30.47                                       |                     |                                   |                                                                                               |                     |
| Jan. 25                                                                                                                      | 3117             | + 22 31     | N                                                                   | <i>I. P. E.</i>                                                 | 9 2 10.57                | + 1.60                   | 12.17                                | N                                                                 | <i>I. P. W.</i>                                                 | 9 15 40.70               | + 1.69                   | 42.39                                | 13 30.22                                    |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3123             | + 22 28     | N                                                                   | <i>d</i>                                                        | 3 10.22                  | + 1.60                   | 11.82                                | N                                                                 | <i>d</i>                                                        | 16 40.32                 | + 1.69                   | 42.01                                | 30.19                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3144             | + 35 7      | N                                                                   | <i>c + 1.9</i><br><i>b + 5.0</i><br><i>a - 23.9</i>             | 7 36.11                  | + 1.75                   | 37.86                                | N                                                                 | <i>c + 0.9</i><br><i>b + 3.4</i><br><i>a - 54.5</i>             | 21 5.97                  | + 2.02                   | 7.99                                 | 30.13                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3132             | + 15 27     | S                                                                   | <i>s</i>                                                        | 5 25.93                  | + 1.52                   | 27.45                                | S                                                                 | <i>s</i>                                                        | 18 56.16                 | + 1.53                   | 57.69                                | 30.24                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3160             | - 5 52      | S                                                                   | <i>Q + 1.39</i>                                                 | 10 25.48                 | + 1.31                   | 26.79                                | S                                                                 | <i>Q + 1.58</i>                                                 | 23 56.07                 | + 1.09                   | 57.16                                | 30.37                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3171             | + 18 12     | S                                                                   |                                                                 | 11 59.61                 | + 1.55                   | 61.16                                | S                                                                 |                                                                 | 25 29.76                 | + 1.59                   | 31.35                                | 30.19                                       |                     |                                   |                                                                                               |                     |
| Jan. 25                                                                                                                      | 3194             | + 25 41     | N                                                                   | <i>I. P. E.</i>                                                 | 9 16 21.01               | - 1.15                   | 19.86                                | N                                                                 | <i>I. P. W.</i>                                                 | 9 29 51.44               | - 1.40                   | 50.04                                | 13 30.18                                    |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3204             | + 26 41     | N                                                                   | <i>d</i>                                                        | 17 25.80                 | - 1.14                   | 24.66                                | N                                                                 | <i>d</i>                                                        | 30 56.24                 | - 1.37                   | 54.87                                | 30.21                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3238             | + 34 10     | N                                                                   | <i>c + 1.9</i><br><i>b + 5.0</i><br><i>a - 23.9</i>             | 23 14.42                 | - 1.04                   | 13.38                                | N                                                                 | <i>c + 0.9</i><br><i>b + 3.4</i><br><i>a - 54.5</i>             | 36 44.71                 | - 1.16                   | 43.55                                | 30.17                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3216             | - 4 37      | S                                                                   | <i>s</i>                                                        | 19 8.19                  | - 1.46                   | 6.73                                 | S                                                                 | <i>s</i>                                                        | 32 39.06                 | - 2.05                   | 37.01                                | 30.28                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3227             | + 9 34      | S                                                                   | <i>Q - 1.39</i>                                                 | 21 46.65                 | - 1.33                   | 45.32                                | S                                                                 | <i>Q - 1.58</i>                                                 | 35 17.38                 | - 1.76                   | 15.62                                | 30.30                                       |                     |                                   |                                                                                               |                     |
|                                                                                                                              | 3250             | + 11 49     | S                                                                   |                                                                 | 25 13.47                 | - 1.31                   | 12.16                                | S                                                                 |                                                                 | 38 44.23                 | - 1.71                   | 42.52                                | 30.36                                       |                     |                                   |                                                                                               |                     |

NOTE.— $1^d = 0^{\circ}.0225$ . Transcribing Equation with all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 3^s$ . AND CHITTAGONG (W) Lat. $22^{\circ} 20'$ , Long. $6^h 7^m 31^s$ . |                  |                    |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |
|----------------------------------------------------------------------------------------------------------------------------|------------------|--------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|
| Astronomical Date                                                                                                          | STAR             |                    | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus. for Peral. Equations<br>$H_N - H_S = +0.019$<br>$S_N - S_S = -0.007$ |
|                                                                                                                            | B.A.C.<br>Number | Declination        | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   | $\delta L_N - \rho$                                                          |
| 1884                                                                                                                       |                  | $^{\circ} \quad '$ |                                                                     |                                                                 | $h \quad m \quad s$      | $s$                      | $s$                                  |                                                                   |                                                                 | $h \quad m \quad s$      | $s$                      | $s$                                  | $m \quad s$                                 |                     |                                   |                                                                              |
| Jan. 26                                                                                                                    | 2504             | + 35 18            | N                                                                   | <i>I. P. E.</i>                                                 | 7 30 22.91               | +1.94                    | 24.85                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 43 53.91               | +1.58                    | 55.49                                | 13 30.64                                    |                     |                                   |                                                                              |
|                                                                                                                            | 2549             | + 26 4             | N                                                                   | $d$                                                             | 36 29.19                 | +1.80                    | 30.99                                | N                                                                 | $d$                                                             | 50 0.13                  | +1.56                    | 1.69                                 | 30.70                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2563             | + 33 43            | N                                                                   | $c - 2.3$<br>$b + 3.0$<br>$a - 28.2$                            | 39 28.45                 | +1.91                    | 30.36                                | N                                                                 | $c - 1.5$<br>$b - 0.4$<br>$a - 4.8$                             | 52 59.35                 | +1.58                    | 60.93                                | 30.57                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2519             | + 17 56            | S                                                                   | $s$                                                             | 32 13.41                 | +1.71                    | 15.12                                | S                                                                 | $s$                                                             | 45 44.32                 | +1.54                    | 45.86                                | 30.74                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2526             | + 5 30             | S                                                                   | $Q + 1.70$                                                      | 33 24.12                 | +1.57                    | 25.69                                | S                                                                 | $Q + 1.60$                                                      | 46 54.87                 | +1.53                    | 56.40                                | 30.71                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2537             | + 13 46            | S                                                                   |                                                                 | 34 48.34                 | +1.66                    | 50.00                                | S                                                                 |                                                                 | 48 19.15                 | +1.54                    | 20.69                                | 30.69                                       |                     |                                   |                                                                              |
| Jan. 26                                                                                                                    | 2586             | + 28 29            | N                                                                   | <i>I. P. E.</i>                                                 | 7 42 16.10               | -1.56                    | 14.54                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 55 46.73               | -1.64                    | 45.09                                | 13 30.55                                    |                     |                                   |                                                                              |
|                                                                                                                            | 2617             | + 27 4             | N                                                                   | $d$                                                             | 45 54.03                 | -1.58                    | 52.45                                | N                                                                 | $d$                                                             | 59 24.73                 | -1.64                    | 23.09                                | 30.64                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2657             | + 25 43            | N                                                                   | $c - 2.3$<br>$b + 3.0$<br>$a - 28.2$                            | 53 24.89                 | -1.61                    | 23.28                                | N                                                                 | $c - 1.5$<br>$b - 0.4$<br>$a - 4.8$                             | 8 6 55.67                | -1.64                    | 54.03                                | 30.75                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2605             | + 19 37            | S                                                                   | $s$                                                             | 44 42.18                 | -1.67                    | 40.51                                | S                                                                 | $s$                                                             | 7 58 12.78               | -1.66                    | 11.12                                | 30.61                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2636             | + 9 10             | S                                                                   | $Q - 1.70$                                                      | 48 43.59                 | -1.79                    | 41.80                                | S                                                                 | $Q - 1.60$                                                      | 8 2 14.10                | -1.66                    | 12.44                                | 30.64                                       |                     |                                   |                                                                              |
|                                                                                                                            | 2649             | + 16 50            | S                                                                   |                                                                 | 51 24.60                 | -1.70                    | 22.90                                | S                                                                 |                                                                 | 4 55.23                  | -1.66                    | 53.57                                | 30.67                                       |                     |                                   |                                                                              |
| Jan. 26                                                                                                                    | 3117             | + 22 31            | N                                                                   | <i>I. P. W.</i>                                                 | 9 2 8.18                 | +1.70                    | 9.88                                 | N                                                                 | <i>I. P. E.</i>                                                 | 9 15 38.83               | +1.55                    | 40.38                                | 13 30.50                                    |                     |                                   |                                                                              |
|                                                                                                                            | 3123             | + 22 28            | N                                                                   | $d$                                                             | 3 7.83                   | +1.70                    | 9.53                                 | N                                                                 | $d$                                                             | 16 38.43                 | +1.55                    | 39.98                                | 30.45                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3144             | + 35 7             | N                                                                   | $c - 0.9$<br>$b + 0.2$<br>$a - 13.3$                            | 7 33.77                  | +1.79                    | 35.56                                | N                                                                 | $c - 1.5$<br>$b - 0.4$<br>$a - 4.8$                             | 21 4.41                  | +1.58                    | 5.99                                 | 30.43                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3160             | - 5 52             | S                                                                   | $s$                                                             | 10 23.08                 | +1.55                    | 24.63                                | S                                                                 | $s$                                                             | 23 53.55                 | +1.51                    | 55.06                                | 30.43                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3171             | + 18 12            | S                                                                   | $Q + 1.70$                                                      | 11 57.18                 | +1.68                    | 58.86                                | S                                                                 | $Q + 1.60$                                                      | 25 27.83                 | +1.54                    | 29.37                                | 30.51                                       |                     |                                   |                                                                              |
| Jan. 26                                                                                                                    | 3194             | + 25 41            | N                                                                   | <i>I. P. W.</i>                                                 | 9 16 19.27               | -1.68                    | 17.59                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 29 49.64               | -1.64                    | 48.00                                | 13 30.41                                    |                     |                                   |                                                                              |
|                                                                                                                            | 3204             | + 26 41            | N                                                                   | $d$                                                             | 17 24.09                 | -1.67                    | 22.42                                | N                                                                 | $d$                                                             | 30 54.46                 | -1.64                    | 52.82                                | 30.40                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3238             | + 34 10            | N                                                                   | $c - 0.9$<br>$b + 0.2$<br>$a - 13.3$                            | 23 12.80                 | -1.61                    | 11.19                                | N                                                                 | $c - 1.5$<br>$b - 0.4$<br>$a - 4.8$                             | 36 43.08                 | -1.62                    | 41.46                                | 30.27                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3216             | - 4 37             | S                                                                   | $s$                                                             | 19 6.40                  | -1.84                    | 4.56                                 | S                                                                 | $s$                                                             | 32 36.63                 | -1.69                    | 34.94                                | 30.38                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3227             | + 9 34             | S                                                                   | $Q - 1.70$                                                      | 21 44.89                 | -1.77                    | 43.12                                | S                                                                 | $Q - 1.60$                                                      | 35 15.17                 | -1.66                    | 13.51                                | 30.39                                       |                     |                                   |                                                                              |
|                                                                                                                            | 3250             | + 11 49            | S                                                                   |                                                                 | 25 11.79                 | -1.76                    | 10.03                                | S                                                                 |                                                                 | 38 42.07                 | -1.66                    | 40.41                                | 30.38                                       |                     |                                   |                                                                              |

NOTE.— $1^s = 0.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                    | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .019<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .007 | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                      | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                      |
| 1884                                                                                                                                                                 |                  | °                |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                      |
| Jan. 29                                                                                                                                                              | 2504             | + 35 18          | N                                                                   | <i>I. P. W.</i>                                                 | 7 30 15.67               | + 1.56                   | 17.23                                | N                                                                 | <i>I. P. W.</i>                                                 | 7 43 46.02               | + 1.53                   | 47.55                                | 13 30.32                                    |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2540             | + 26 4           | N                                                                   | <i>d</i>                                                        | 36 21.97                 | + 1.50                   | 23.47                                | N                                                                 | <i>d</i>                                                        | 49 52.26                 | + 1.47                   | 53.73                                | 30.26                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2563             | + 33 43          | N                                                                   | <i>c</i> - 2.5<br><i>b</i> - 4.6<br><i>a</i> - 18.5             | 39 21.20                 | + 1.55                   | 22.75                                | N                                                                 | <i>c</i> - 0.8<br><i>b</i> - 4.9<br><i>a</i> - 16.1             | 52 51.50                 | + 1.52                   | 53.02                                | 30.27                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2519             | + 17 56          | S                                                                   | <i>s</i><br><i>Q</i> + 1.61                                     | 32 6.21                  | + 1.43                   | 7.64                                 | S                                                                 | <i>s</i><br><i>Q</i> + 1.58                                     | 45 36.51                 | + 1.41                   | 37.92                                | 30.28                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2528             | + 5 30           | S                                                                   |                                                                 | 33 16.88                 | + 1.35                   | 18.23                                | S                                                                 |                                                                 | 46 47.11                 | + 1.34                   | 48.45                                | 30.22                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2537             | + 13 46          | S                                                                   |                                                                 | 34 41.14                 | + 1.40                   | 42.54                                | S                                                                 |                                                                 | 48 11.38                 | + 1.39                   | 12.77                                | 30.23                                       |                     |                                   |                                                                                                                                                    |                      |
| Jan. 29                                                                                                                                                              | 2586             | + 28 29          | N                                                                   | <i>I. P. W.</i>                                                 | 7 42 8.68                | - 1.71                   | 6.97                                 | N                                                                 | <i>I. P. W.</i>                                                 | 7 55 38.92               | - 1.68                   | 37.24                                | 13 30.27                                    |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2617             | + 27 4           | N                                                                   | <i>d</i>                                                        | 45 46.62                 | - 1.72                   | 44.90                                | N                                                                 | <i>d</i>                                                        | 59 16.85                 | - 1.69                   | 15.16                                | 30.26                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2657             | + 25 43          | N                                                                   | <i>c</i> - 2.5<br><i>b</i> - 4.6<br><i>a</i> - 18.5             | 53 17.58                 | - 1.72                   | 15.86                                | N                                                                 | <i>c</i> - 0.8<br><i>b</i> - 4.9<br><i>a</i> - 16.1             | 8 6 47.75                | - 1.70                   | 46.05                                | 30.19                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2605             | + 19 37          | S                                                                   | <i>s</i><br><i>Q</i> - 1.61                                     | 44 34.80                 | - 1.77                   | 33.03                                | S                                                                 | <i>s</i><br><i>Q</i> - 1.58                                     | 7 58 5.00                | - 1.74                   | 3.26                                 | 30.23                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2636             | + 9 10           | S                                                                   |                                                                 | 48 36.15                 | - 1.84                   | 34.31                                | S                                                                 |                                                                 | 8 2 6.32                 | - 1.79                   | 4.53                                 | 30.22                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 2649             | + 16 50          | S                                                                   |                                                                 | 51 17.17                 | - 1.79                   | 15.38                                | S                                                                 |                                                                 | 4 47.39                  | - 1.75                   | 45.64                                | 30.26                                       |                     |                                   |                                                                                                                                                    |                      |
| Jan. 29                                                                                                                                                              | 3117             | + 22 31          | N                                                                   | <i>I. P. E.</i>                                                 | 9 2 0.60                 | + 1.43                   | 2.03                                 | N                                                                 | <i>I. P. W.</i>                                                 | 9 15 31.03               | + 1.44                   | 32.47                                | 13 30.44                                    |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3123             | + 22 28          | N                                                                   | <i>d</i>                                                        | 3 0.27                   | + 1.43                   | 1.70                                 | N                                                                 | <i>d</i>                                                        | 16 30.66                 | + 1.44                   | 32.10                                | 30.40                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3144             | + 35 7           | N                                                                   | <i>c</i> - 0.4<br><i>b</i> - 8.8<br><i>a</i> - 25.1             | 7 26.25                  | + 1.56                   | 27.81                                | N                                                                 | <i>c</i> - 0.8<br><i>b</i> - 4.9<br><i>a</i> - 16.1             | 20 56.59                 | + 1.53                   | 58.12                                | 30.31                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3160             | - 5 52           | S                                                                   | <i>s</i><br><i>Q</i> + 1.61                                     | 10 15.54                 | + 1.18                   | 16.72                                | S                                                                 | <i>s</i><br><i>Q</i> + 1.58                                     | 23 45.93                 | + 1.29                   | 47.22                                | 30.50                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3171             | + 18 12          | S                                                                   |                                                                 | 11 49.67                 | + 1.38                   | 51.05                                | S                                                                 |                                                                 | 25 20.00                 | + 1.41                   | 21.41                                | 30.36                                       |                     |                                   |                                                                                                                                                    |                      |
| Jan. 29                                                                                                                                                              | 3194             | + 25 41          | N                                                                   | <i>I. P. E.</i>                                                 | 9 16 11.55               | - 1.76                   | 9.79                                 | N                                                                 | <i>I. P. W.</i>                                                 | 9 29 41.80               | - 1.70                   | 40.10                                | 13 30.31                                    |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3204             | + 26 41          | N                                                                   | <i>d</i>                                                        | 17 16.37                 | - 1.75                   | 14.62                                | N                                                                 | <i>d</i>                                                        | 30 46.62                 | - 1.69                   | 44.93                                | 30.31                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3238             | + 34 10          | N                                                                   | <i>c</i> - 0.4<br><i>b</i> - 8.8<br><i>a</i> - 25.1             | 23 4.99                  | - 1.67                   | 3.32                                 | N                                                                 | <i>c</i> - 0.8<br><i>b</i> - 4.9<br><i>a</i> - 16.1             | 36 35.17                 | - 1.64                   | 33.53                                | 30.21                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3216             | - 4 37           | S                                                                   | <i>s</i><br><i>Q</i> - 1.61                                     | 18 58.63                 | - 2.02                   | 56.61                                | S                                                                 | <i>s</i><br><i>Q</i> - 1.58                                     | 32 28.91                 | - 1.86                   | 27.05                                | 30.44                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3227             | + 9 34           | S                                                                   |                                                                 | 21 37.17                 | - 1.91                   | 35.26                                | S                                                                 |                                                                 | 35 7.45                  | - 1.79                   | 5.66                                 | 30.40                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                      | 3250             | + 11 49          | S                                                                   |                                                                 | 25 4.04                  | - 1.89                   | 2.15                                 | S                                                                 |                                                                 | 38 34.37                 | - 1.78                   | 32.59                                | 30.44                                       |                     |                                   |                                                                                                                                                    |                      |

NOTE.— $1^s = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ : AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |                  |                  |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                   |
|------------------------------------------------------------------------------------------------------------------------|------------------|------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|
| Astronomical Date                                                                                                      | STAR             |                  | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>$H_N - H_S = + 0^s.019$<br>$S_N - S_S = - 0^s.007$ |
|                                                                                                                        | B.A.C.<br>Number | Decli-<br>nation | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |
| 1884                                                                                                                   |                  | ° ' "            |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2504             | + 35 18          | N                                                            | <i>I. P. E.</i>                                                 | 7 30 13.26               | + 1.59                   | 14.85                                | N                                                          | <i>I. P. E.</i>                                                 | 7 43 43.79               | + 1.64                   | 45.43                                | 13 30.58                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 2549             | + 26 4           | N                                                            | <i>d</i>                                                        | 36 19.31                 | + 1.62                   | 20.93                                | N                                                          | <i>d</i>                                                        | 49 50.03                 | + 1.59                   | 51.62                                | 30.60                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2568             | + 33 43          | N                                                            | <i>a - 1.1</i><br><i>b + 2.2</i><br><i>a + 7.9</i>              | 39 18.74                 | + 1.60                   | 20.34                                | N                                                          | <i>a - 1.2</i><br><i>b + 1.3</i><br><i>a - 9.3</i>              | 52 49.30                 | + 1.63                   | 50.93                                | 30.59                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2519             | + 17 56          | S                                                            | <i>s</i>                                                        | 32 3.43                  | + 1.64                   | 5.07                                 | S                                                          | <i>s</i>                                                        | 45 34.26                 | + 1.56                   | 35.82                                | 30.75                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2526             | + 5 30           | S                                                            | <i>Q + 1.62</i>                                                 | 33 13.93                 | + 1.69                   | 15.62                                | S                                                          | <i>Q + 1.58</i>                                                 | 46 44.83                 | + 1.52                   | 46.35                                | 30.73                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2537             | + 13 46          | S                                                            |                                                                 | 34 38.34                 | + 1.66                   | 40.00                                | S                                                          |                                                                 | 48 9.09                  | + 1.55                   | 10.64                                | 30.64                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2586             | + 28 29          | N                                                            | <i>I. P. E.</i>                                                 | 7 42 6.20                | - 1.62                   | 4.58                                 | N                                                          | <i>I. P. E.</i>                                                 | 7 55 36.63               | - 1.55                   | 35.08                                | 13 30.50                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 2617             | + 27 4           | N                                                            | <i>d</i>                                                        | 45 44.04                 | - 1.62                   | 42.42                                | N                                                          | <i>d</i>                                                        | 59 14.61                 | - 1.56                   | 13.05                                | 30.63                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2657             | + 25 43          | N                                                            | <i>a - 1.1</i><br><i>b + 2.2</i><br><i>a + 7.9</i>              | 53 14.87                 | - 1.62                   | 13.25                                | N                                                          | <i>a - 1.2</i><br><i>b + 1.3</i><br><i>a - 9.3</i>              | 8 6 45.40                | - 1.57                   | 43.83                                | 30.58                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2605             | + 19 37          | S                                                            | <i>s</i>                                                        | 44 32.07                 | - 1.60                   | 30.47                                | S                                                          | <i>s</i>                                                        | 7 58 2.71                | - 1.59                   | 1.12                                 | 30.65                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2636             | + 9 10           | S                                                            | <i>Q - 1.62</i>                                                 | 48 33.35                 | - 1.57                   | 31.78                                | S                                                          | <i>Q - 1.58</i>                                                 | 8 2 3.99                 | - 1.63                   | 2.36                                 | 30.58                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2649             | + 16 50          | S                                                            |                                                                 | 51 14.43                 | - 1.59                   | 12.84                                | S                                                          |                                                                 | 4 45.06                  | - 1.60                   | 43.46                                | 30.62                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 3117             | + 22 31          | N                                                            | <i>I. P. W.</i>                                                 | 9 15 58.07               | + 1.73                   | 59.80                                | N                                                          | <i>I. P. E.</i>                                                 | 9 15 28.76               | + 1.58                   | 30.34                                | 13 30.54                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 3123             | + 22 28          | N                                                            | <i>d</i>                                                        | 2 57.70                  | + 1.73                   | 59.43                                | N                                                          | <i>d</i>                                                        | 16 28.39                 | + 1.58                   | 29.97                                | 30.54                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3144             | + 35 7           | N                                                            | <i>a - 1.3</i><br><i>b + 5.6</i><br><i>a - 3.3</i>              | 7 23.76                  | + 1.76                   | 25.52                                | N                                                          | <i>a - 1.2</i><br><i>b + 1.3</i><br><i>a - 9.3</i>              | 20 54.33                 | + 1.64                   | 55.97                                | 30.45                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3132             | + 15 27          | S                                                            | <i>s</i>                                                        | 5 13.34                  | + 1.72                   | 15.06                                | S                                                          | <i>s</i>                                                        | 18 44.05                 | + 1.55                   | 45.60                                | 30.54                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3160             | - 5 52           | S                                                            | <i>Q + 1.62</i>                                                 | 10 12.75                 | + 1.67                   | 14.42                                | S                                                          | <i>Q + 1.58</i>                                                 | 23 43.58                 | + 1.48                   | 45.06                                | 30.64                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3171             | + 18 12          | S                                                            |                                                                 | 11 47.10                 | + 1.72                   | 48.82                                | S                                                          |                                                                 | 25 17.75                 | + 1.56                   | 19.31                                | 30.40                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 3194             | + 25 41          | N                                                            | <i>I. P. W.</i>                                                 | 9 16 9.08                | - 1.50                   | 7.58                                 | N                                                          | <i>I. P. E.</i>                                                 | 9 29 39.56               | - 1.57                   | 37.99                                | 13 30.41                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 3204             | + 26 41          | N                                                            | <i>d</i>                                                        | 17 13.93                 | - 1.50                   | 12.43                                | N                                                          | <i>d</i>                                                        | 30 44.41                 | - 1.56                   | 42.85                                | 30.42                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3238             | + 34 10          | N                                                            | <i>a - 1.3</i><br><i>b + 5.6</i><br><i>a - 3.3</i>              | 23 2.61                  | - 1.49                   | 1.12                                 | N                                                          | <i>a - 1.2</i><br><i>b + 1.3</i><br><i>a - 9.3</i>              | 36 33.01                 | - 1.53                   | 31.48                                | 30.36                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3216             | - 4 37           | S                                                            | <i>s</i>                                                        | 18 56.05                 | - 1.56                   | 54.49                                | S                                                          | <i>s</i>                                                        | 32 26.65                 | - 1.67                   | 24.98                                | 30.49                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3227             | + 9 34           | S                                                            | <i>Q - 1.62</i>                                                 | 21 34.67                 | - 1.53                   | 33.14                                | S                                                          | <i>Q - 1.58</i>                                                 | 35 5.23                  | - 1.63                   | 3.60                                 | 30.46                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3250             | + 11 49          | S                                                            |                                                                 | 24 61.51                 | - 1.53                   | 59.98                                | S                                                          |                                                                 | 38 32.07                 | - 1.62                   | 30.45                                | 30.47                                       |                     |                                   |                                                                                   |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation with all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^\circ 21' 2''$ ; AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^\circ 7' 31''$ . |                  |             |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                |
|------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|--------------------------------------------------------------------------------|
| Astronomical Date                                                                                                            | STAR             |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrus. for Peral. Equations<br>$H_N - H_S = + 0.019$<br>$S_N - S_S = - 0.007$ |
|                                                                                                                              | B.A.C.<br>Number | Declination | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                |
| 1884                                                                                                                         |                  |             |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                |
| Jan. 21                                                                                                                      | 2278             | + 26 4      | N                                                            | <i>I. P. W.</i>                                                 | 6 38 47.75               | + 1.48                   | 49.23                                | N                                                          | <i>I. P. W.</i>                                                 | 6 52 17.95               | + 1.60                   | 19.55                                | 13 30.32                                    |                     |                                   |                                                                                |
|                                                                                                                              | 2301             | + 29 32     | N                                                            | <i>c + 1.0</i>                                                  | 42 37.68                 | + 1.53                   | 39.21                                | N                                                          | <i>c - 0.6</i>                                                  | 56 7.84                  | + 1.62                   | 9.46                                 | 30.25                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2313             | + 22 49     | N                                                            | <i>b - 4.1</i><br><i>a - 29.4</i>                               | 44 48.99                 | + 1.43                   | 50.42                                | N                                                          | <i>b + 0.6</i><br><i>a - 12.4</i>                               | 58 18.98                 | + 1.58                   | 20.56                                | 30.14                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2285             | + 16 14     | S                                                            | <i>s</i>                                                        | 40 5.41                  | + 1.35                   | 6.76                                 | S                                                          | <i>s</i>                                                        | 53 35.52                 | + 1.55                   | 37.07                                | 30.31                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2330             | + 16 7      | S                                                            | <i>Q + 1.46</i>                                                 | 48 12.43                 | + 1.35                   | 13.78                                | S                                                          | <i>Q + 1.58</i>                                                 | 7 142.57                 | + 1.55                   | 44.12                                | 30.34                                       |                     |                                   |                                                                                |
| Jan. 21                                                                                                                      | 2350             | + 24 19     | N                                                            | <i>I. P. W.</i>                                                 | 6 51 55.87               | - 1.47                   | 54.40                                | N                                                          | <i>I. P. W.</i>                                                 | 7 5 26.31                | - 1.57                   | 24.74                                | 13 30.34                                    |                     |                                   |                                                                                |
|                                                                                                                              | 2416             | + 36 59     | N                                                            | <i>c + 1.0</i>                                                  | 7 049.93                 | - 1.28                   | 48.65                                | N                                                          | <i>c - 0.6</i>                                                  | 14 20.54                 | - 1.49                   | 19.05                                | 30.40                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2431             | + 25 16     | N                                                            | <i>b - 4.1</i><br><i>a - 29.4</i>                               | 2 56.64                  | - 1.46                   | 55.18                                | N                                                          | <i>b + 0.6</i><br><i>a - 12.4</i>                               | 16 27.10                 | - 1.56                   | 25.54                                | 30.36                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2362             | + 16 21     | S                                                            | <i>s</i>                                                        | 6 53 15.00               | - 1.57                   | 13.43                                | S                                                          | <i>s</i>                                                        | 6 45.40                  | - 1.61                   | 43.79                                | 30.36                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2373             | + 3 19      | S                                                            | <i>Q - 1.46</i>                                                 | 54 47.80                 | - 1.71                   | 46.09                                | S                                                          | <i>Q - 1.58</i>                                                 | 8 18.15                  | - 1.67                   | 16.48                                | 30.39                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2308             | + 16 45     | S                                                            |                                                                 | 57 57.99                 | - 1.57                   | 56.42                                | S                                                          |                                                                 | 11 28.45                 | - 1.61                   | 26.84                                | 30.42                                       |                     |                                   |                                                                                |
| Jan. 21                                                                                                                      | 2871             | + 36 49     | N                                                            | <i>I. P. E.</i>                                                 | 8 13 46.11               | + 1.44                   | 47.55                                | N                                                          | <i>I. P. W.</i>                                                 | 8 27 16.27               | + 1.67                   | 17.94                                | 13 30.39                                    |                     |                                   |                                                                                |
|                                                                                                                              | 2912             | + 32 21     | N                                                            | <i>c - 3.7</i>                                                  | 19 36.15                 | + 1.38                   | 37.53                                | N                                                          | <i>c - 0.6</i>                                                  | 33 6.27                  | + 1.64                   | 7.91                                 | 30.38                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2853             | + 18 29     | S                                                            | <i>b - 5.9</i><br><i>a - 28.1</i>                               | 11 28.40                 | + 1.22                   | 29.62                                | S                                                          | <i>b + 0.6</i><br><i>a - 12.4</i>                               | 24 58.52                 | + 1.56                   | 60.08                                | 30.46                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2889             | + 7 2       | S                                                            | <i>s</i>                                                        | 16 10.55                 | + 1.13                   | 11.67                                | S                                                          | <i>s</i>                                                        | 29 40.57                 | + 1.51                   | 42.08                                | 30.41                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2899             | + 19 40     | S                                                            | <i>Q + 1.46</i>                                                 | 17 37.31                 | + 1.24                   | 38.55                                | S                                                          | <i>Q + 1.58</i>                                                 | 31 7.37                  | + 1.57                   | 8.94                                 | 30.39                                       |                     |                                   |                                                                                |
| Jan. 21                                                                                                                      | 2084             | + 33 44     | N                                                            | <i>I. P. E.</i>                                                 | 8 29 52.18               | - 1.51                   | 50.67                                | N                                                          | <i>I. P. W.</i>                                                 | 8 43 22.54               | - 1.51                   | 21.03                                | 13 30.36                                    |                     |                                   |                                                                                |
|                                                                                                                              | 3016             | + 31 1      | N                                                            | <i>c - 3.7</i>                                                  | 33 42.35                 | - 1.56                   | 40.79                                | N                                                          | <i>c - 0.6</i>                                                  | 47 12.72                 | - 1.53                   | 11.19                                | 30.40                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2042             | + 13 6      | S                                                            | <i>b - 5.9</i><br><i>a - 28.1</i>                               | 23 21.23                 | - 1.75                   | 19.48                                | S                                                          | <i>b + 0.6</i><br><i>a - 12.4</i>                               | 36 51.52                 | - 1.63                   | 49.89                                | 30.41                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2068             | + 10 30     | S                                                            | <i>s</i>                                                        | 24 59.77                 | - 1.76                   | 58.01                                | S                                                          | <i>s</i>                                                        | 38 30.04                 | - 1.64                   | 28.40                                | 30.39                                       |                     |                                   |                                                                                |
|                                                                                                                              | 2970             | + 12 33     | S                                                            | <i>Q - 1.46</i>                                                 | 27 6.97                  | - 1.76                   | 5.21                                 | S                                                          | <i>Q - 1.58</i>                                                 | 40 37.25                 | - 1.63                   | 35.62                                | 30.41                                       |                     |                                   |                                                                                |

NOTE.— $1^d = 0.0225$ . Transcribing Equation #17, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . AND CHITTAGONG (W) Lat. 23° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |               |             |                                    |                                                 |                    |                  |                           |                                  |                                                 |                    |                  |                           |                                       |                         |                                |                                                                                                                                                      |                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|----------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|-------------------------|--------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                    | STAR          |             | TRANSITS OBSERVED AT E             |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W           |                                                 |                    |                  |                           | Difference of Corrected Times (W - E) |                         | Correction for Rate of W Clock | Corrns. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> 0' 19<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> 0' 07 | δ L <sub>N</sub> + ρ |
|                                                                                                                                                                      |               |             | By Heavyside, with Telescope No. 1 |                                                 |                    |                  |                           | By Strahan, with Telescope No. 2 |                                                 |                    |                  |                           | By each Star                          | Mean of Group           |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | B.A.C. Number | Declination | Star's Aspect                      | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                    | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |                         |                                |                                                                                                                                                      |                      |
| 1884                                                                                                                                                                 |               | ° ' "       |                                    |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                  |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |                         |                                |                                                                                                                                                      |                      |
| Jan. 22                                                                                                                                                              | 2278          | + 26 4      | N                                  | <i>I. P. E.</i>                                 | 6 38 46.83         | + 1.52           | 48.35                     | N                                | <i>I. P. E.</i>                                 | 6 52 17.23         | + 1.73           | 18.96                     | 13 30.61                              | <i>m s</i><br>13 30.680 | + 0.009                        | -                                                                                                                                                    | 13 30.676            |
|                                                                                                                                                                      | 2301          | + 29 32     | N                                  | <i>c + 0.4</i><br><i>d</i>                      | 42 36.66           | + 1.58           | 38.24                     | N                                | <i>c - 2.4</i><br><i>d</i>                      | 56 7.06            | + 1.82           | 8.88                      | 30.64                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2313          | + 22 49     | N                                  | <i>b - 3.6</i><br><i>a - 37.7</i>               | 44 47.95           | + 1.46           | 49.41                     | N                                | <i>b + 5.3</i><br><i>a - 46.3</i>               | 58 18.38           | + 1.67           | 20.05                     | 30.64                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2271          | + 18 3      | S                                  | <i>s</i>                                        | 37 26.15           | + 1.39           | 27.54                     | S                                | <i>s</i>                                        | 50 56.73           | + 1.58           | 58.31                     | 30.77                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2285          | + 16 14     | S                                  | <i>Q + 1.48</i>                                 | 40 4.43            | + 1.37           | 5.80                      | S                                | <i>Q + 1.59</i>                                 | 53 34.94           | + 1.53           | 36.47                     | 30.67                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2330          | + 16 7      | S                                  |                                                 | 48 11.45           | + 1.37           | 12.82                     | S                                |                                                 | 7 142.04           | + 1.53           | 43.57                     | 30.75                                 |                         |                                |                                                                                                                                                      |                      |
| Jan. 22                                                                                                                                                              | 2350          | + 24 19     | N                                  | <i>I. P. E.</i>                                 | 6 51 54.95         | - 1.47           | 53.48                     | N                                | <i>I. P. E.</i>                                 | 7 5 25.64          | - 1.48           | 24.16                     | 13 30.68                              | <i>m s</i><br>13 30.722 | + 0.009                        | -                                                                                                                                                    | 13 30.718            |
|                                                                                                                                                                      | 2410          | + 36 59     | N                                  | <i>c + 0.4</i><br><i>d</i>                      | 7 049.11           | - 1.24           | 47.87                     | N                                | <i>c - 2.4</i><br><i>d</i>                      | 14 19.71           | - 1.19           | 18.52                     | 30.65                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2431          | + 25 16     | N                                  | <i>b - 3.6</i><br><i>a - 37.7</i>               | 2 55.65            | - 1.45           | 54.20                     | N                                | <i>b + 5.3</i><br><i>a - 46.3</i>               | 16 26.42           | - 1.46           | 24.96                     | 30.76                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2362          | + 16 21     | S                                  | <i>s</i>                                        | 6 53 14.11         | - 1.59           | 12.52                     | S                                | <i>s</i>                                        | 6 44.85            | - 1.65           | 43.20                     | 30.68                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2873          | + 3 19      | S                                  | <i>Q - 1.48</i>                                 | 54 46.89           | - 1.78           | 45.11                     | S                                | <i>Q - 1.59</i>                                 | 8 17.74            | - 1.87           | 15.87                     | 30.76                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2308          | + 16 45     | S                                  |                                                 | 57 57.07           | - 1.58           | 55.49                     | S                                |                                                 | 11 27.93           | - 1.64           | 26.29                     | 30.80                                 |                         |                                |                                                                                                                                                      |                      |
| Jan. 22                                                                                                                                                              | 2841          | + 26 35     | N                                  | <i>I. P. W.</i>                                 | 8 9 20.36          | + 1.25           | 21.61                     | N                                | <i>I. P. E.</i>                                 | 8 22 50.39         | + 1.75           | 52.14                     | 13 30.53                              | <i>m s</i><br>13 30.585 | + 0.009                        | -                                                                                                                                                    | 13 30.581            |
|                                                                                                                                                                      | 2871          | + 36 49     | N                                  | <i>c - 6.2</i><br><i>d</i>                      | 13 45.43           | + 1.34           | 46.77                     | N                                | <i>c - 2.4</i><br><i>d</i>                      | 27 15.34           | + 1.98           | 17.32                     | 30.55                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2912          | + 32 21     | N                                  | <i>b - 6.0</i><br><i>a - 22.3</i>               | 19 35.48           | + 1.29           | 36.77                     | N                                | <i>b + 5.3</i><br><i>a - 46.3</i>               | 33 5.47            | + 1.89           | 7.36                      | 30.59                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2853          | + 18 29     | S                                  | <i>s</i>                                        | 11 27.60           | + 1.19           | 28.79                     | S                                | <i>s</i>                                        | 24 57.87           | + 1.59           | 59.46                     | 30.67                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2889          | + 7 2       | S                                  | <i>Q + 1.48</i>                                 | 16 9.75            | + 1.11           | 10.86                     | S                                | <i>Q + 1.59</i>                                 | 29 40.09           | + 1.38           | 41.47                     | 30.61                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2899          | + 19 40     | S                                  |                                                 | 17 36.54           | + 1.20           | 37.74                     | S                                |                                                 | 31 6.69            | + 1.61           | 8.30                      | 30.56                                 |                         |                                |                                                                                                                                                      |                      |
| Jan. 22                                                                                                                                                              | 2984          | + 33 44     | N                                  | <i>I. P. W.</i>                                 | 8 29 51.41         | - 1.65           | 49.76                     | N                                | <i>I. P. E.</i>                                 | 8 43 21.68         | - 1.26           | 20.42                     | 13 30.66                              | <i>m s</i><br>13 30.665 | + 0.009                        | -                                                                                                                                                    | 13 30.661            |
|                                                                                                                                                                      | 3002          | + 28 46     | N                                  | <i>c - 6.2</i><br><i>d</i>                      | 31 61.68           | - 1.69           | 59.99                     | N                                | <i>c - 2.4</i><br><i>d</i>                      | 45 31.97           | - 1.38           | 30.59                     | 30.60                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 3016          | + 31 1      | N                                  | <i>b - 6.0</i><br><i>a - 22.3</i>               | 33 41.57           | - 1.67           | 39.90                     | N                                | <i>b + 5.3</i><br><i>a - 46.3</i>               | 47 11.85           | - 1.32           | 10.53                     | 30.63                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2942          | + 13 6      | S                                  | <i>s</i>                                        | 23 20.40           | - 1.81           | 18.59                     | S                                | <i>s</i>                                        | 36 50.99           | - 1.70           | 49.29                     | 30.70                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2958          | + 10 30     | S                                  | <i>Q - 1.48</i>                                 | 24 58.89           | - 1.83           | 57.06                     | S                                | <i>Q - 1.59</i>                                 | 38 29.51           | - 1.74           | 27.77                     | 30.71                                 |                         |                                |                                                                                                                                                      |                      |
|                                                                                                                                                                      | 2970          | + 12 33     | S                                  |                                                 | 27 6.13            | - 1.82           | 4.31                      | S                                |                                                 | 40 36.71           | - 1.71           | 35.00                     | 30.69                                 |                         |                                |                                                                                                                                                      |                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *sz*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                   |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                    | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .019<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .007 | δL <sub>N</sub> + ρ |
|                                                                                                                                                                      | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                   |                     |
| 1884                                                                                                                                                                 |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                   |                     |
| Jan. 23                                                                                                                                                              | 2278             | + 26 4           | N                                                                   | <i>I. P. W.</i>                                                 | 6 38 46.09               | + 1.12                   | 47.21                                | N                                                                 | <i>I. P. W.</i>                                                 | 6 52 15.90               | + 1.76                   | 17.66                                | 13 30.45                                    | 13 30.453           | + 0.011                           | - 0.013                                                                                                                                           | 13 30.451           |
|                                                                                                                                                                      | 2301             | + 29 32          | N                                                                   | <i>c - 2.8</i>                                                  | 42 36.07                 | + 1.11                   | 37.18                                | N                                                                 | <i>c + 0.7</i>                                                  | 56 5.74                  | + 1.84                   | 7.58                                 | 30.40                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2813             | + 22 49          | N                                                                   | <i>b - 6.1</i><br><i>a + 11.4</i>                               | 44 47.19                 | + 1.14                   | 48.33                                | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>                               | 58 17.10                 | + 1.69                   | 18.79                                | 30.46                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2271             | + 18 3           | S                                                                   | <i>s</i>                                                        | 37 25.28                 | + 1.17                   | 26.45                                | S                                                                 | <i>s</i>                                                        | 50 55.38                 | + 1.59                   | 56.97                                | 30.52                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2285             | + 16 14          | S                                                                   | <i>Q + 1.38</i>                                                 | 40 3.55                  | + 1.18                   | 4.73                                 | S                                                                 | <i>Q + 1.59</i>                                                 | 53 33.60                 | + 1.56                   | 35.16                                | 30.43                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2330             | + 16 7           | S                                                                   |                                                                 | 48 10.58                 | + 1.18                   | 11.76                                | S                                                                 |                                                                 | 7 140.67                 | + 1.55                   | 42.22                                | 30.46                                       |                     |                                   |                                                                                                                                                   |                     |
| Jan. 23                                                                                                                                                              | 2350             | + 24 19          | N                                                                   | <i>I. P. W.</i>                                                 | 6 51 54.03               | - 1.63                   | 52.40                                | N                                                                 | <i>I. P. W.</i>                                                 | 7 5 24.42                | - 1.46                   | 22.96                                | 13 30.56                                    | 13 30.507           | + 0.011                           | - 0.013                                                                                                                                           | 13 30.505           |
|                                                                                                                                                                      | 2416             | + 36 59          | N                                                                   | <i>c - 2.8</i>                                                  | 7 048.48                 | - 1.72                   | 46.76                                | N                                                                 | <i>c + 0.7</i>                                                  | 14 18.39                 | - 1.15                   | 17.24                                | 30.48                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2431             | + 25 16          | N                                                                   | <i>b - 6.1</i><br><i>a + 11.4</i>                               | 2 54.80                  | - 1.63                   | 53.17                                | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>                               | 16 25.05                 | - 1.44                   | 23.61                                | 30.44                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2362             | + 16 21          | S                                                                   | <i>s</i>                                                        | 6 53 13.04               | - 1.58                   | 11.46                                | S                                                                 | <i>s</i>                                                        | 6 43.56                  | - 1.62                   | 41.94                                | 30.48                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2373             | + 3 19           | S                                                                   | <i>Q - 1.38</i>                                                 | 54 45.56                 | - 1.50                   | 44.06                                | S                                                                 | <i>Q - 1.59</i>                                                 | 8 16.49                  | - 1.86                   | 14.63                                | 30.57                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2398             | + 16 45          | S                                                                   |                                                                 | 57 55.99                 | - 1.58                   | 54.41                                | S                                                                 |                                                                 | 11 26.53                 | - 1.61                   | 24.92                                | 30.51                                       |                     |                                   |                                                                                                                                                   |                     |
| Jan. 23                                                                                                                                                              | 2841             | + 26 35          | N                                                                   | <i>I. P. E.</i>                                                 | 8 9 19.14                | + 1.33                   | 20.47                                | N                                                                 | <i>I. P. W.</i>                                                 | 8 22 49.18               | + 1.77                   | 50.95                                | 13 30.48                                    | 13 30.462           | + 0.011                           | - 0.013                                                                                                                                           | 13 30.460           |
|                                                                                                                                                                      | 2871             | + 36 49          | N                                                                   | <i>c + 0.9</i>                                                  | 13 44.29                 | + 1.36                   | 45.65                                | N                                                                 | <i>c + 0.7</i>                                                  | 27 14.06                 | + 2.03                   | 16.09                                | 30.44                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2012             | + 32 21          | N                                                                   | <i>b - 3.5</i><br><i>a - 5.1</i>                                | 19 34.39                 | + 1.34                   | 35.73                                | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>                               | 33 4.21                  | + 1.91                   | 6.12                                 | 30.39                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2853             | + 18 29          | S                                                                   | <i>s</i>                                                        | 11 26.38                 | + 1.32                   | 27.70                                | S                                                                 | <i>s</i>                                                        | 24 56.56                 | + 1.60                   | 58.16                                | 30.46                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2880             | + 7 2            | S                                                                   | <i>Q + 1.38</i>                                                 | 16 8.35                  | + 1.30                   | 9.65                                 | S                                                                 | <i>Q + 1.59</i>                                                 | 29 38.83                 | + 1.38                   | 40.21                                | 30.56                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2899             | + 19 40          | S                                                                   |                                                                 | 17 35.29                 | + 1.32                   | 36.61                                | S                                                                 |                                                                 | 31 5.42                  | + 1.63                   | 7.05                                 | 30.44                                       |                     |                                   |                                                                                                                                                   |                     |
| Jan. 23                                                                                                                                                              | 2984             | + 33 44          | N                                                                   | <i>I. P. E.</i>                                                 | 8 29 50.26               | - 1.41                   | 48.85                                | N                                                                 | <i>I. P. W.</i>                                                 | 8 43 20.41               | - 1.24                   | 19.17                                | 13 30.32                                    | 13 30.420           | + 0.011                           | - 0.013                                                                                                                                           | 13 30.418           |
|                                                                                                                                                                      | 3002             | + 28 46          | N                                                                   | <i>c + 0.9</i>                                                  | 31 60.35                 | - 1.43                   | 58.92                                | N                                                                 | <i>c + 0.7</i>                                                  | 45 30.70                 | - 1.56                   | 29.34                                | 30.42                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 3016             | + 31 1           | N                                                                   | <i>b - 3.5</i><br><i>a - 5.1</i>                                | 33 40.30                 | - 1.42                   | 38.88                                | N                                                                 | <i>b + 2.8</i><br><i>a - 48.1</i>                               | 47 10.60                 | - 1.31                   | 9.29                                 | 30.41                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2942             | + 13 6           | S                                                                   | <i>s</i>                                                        | 23 19.03                 | - 1.45                   | 17.58                                | S                                                                 | <i>s</i>                                                        | 36 49.69                 | - 1.69                   | 48.00                                | 30.42                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2958             | + 10 30          | S                                                                   | <i>Q - 1.38</i>                                                 | 24 57.45                 | - 1.46                   | 55.99                                | S                                                                 | <i>Q - 1.59</i>                                                 | 38 28.19                 | - 1.74                   | 26.45                                | 30.46                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                      | 2970             | + 12 33          | S                                                                   |                                                                 | 27 4.66                  | - 1.45                   | 3.21                                 | S                                                                 |                                                                 | 40 35.40                 | - 1.70                   | 33.70                                | 30.49                                       |                     |                                   |                                                                                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation #12, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 8 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                         |                                   |                                                                                                                        |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|-------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                    | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                         | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0.019<br>S <sub>N</sub> - S <sub>S</sub> = - 0.007 | δL <sub>N</sub> + ρ |
|                                                                                                                                                                      | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group     |                                   |                                                                                                                        |                     |
| 1884                                                                                                                                                                 |                  | °           |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                         |                                   |                                                                                                                        |                     |
| Jan. 24                                                                                                                                                              | 2278             | + 26 4      | N                                                                   | <i>I. P. E.</i>                                                 | 6 38 44.37               | + 1.56                   | 45.93                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 52 14.87               | + 1.83                   | 16.70                                | 13 30.77                                    |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2301             | + 29 32     | N                                                                   | <i>d</i><br>c + 0.1                                             | 42 34.31                 | + 1.59                   | 35.90                                | N                                                                 | <i>d</i><br>c - 2.1                                             | 56 4.66                  | + 1.91                   | 6.57                                 | 30.67                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2313             | + 22 49     | N                                                                   | <i>b</i> + 5.1<br><i>a</i> - 14.3                               | 44 45.57                 | + 1.53                   | 47.10                                | N                                                                 | <i>b</i> + 7.6<br><i>a</i> - 47.3                               | 58 15.97                 | + 1.76                   | 17.73                                | 30.63                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2271             | + 18 3      | S                                                                   | <i>s</i>                                                        | 37 23.68                 | + 1.51                   | 25.19                                | S                                                                 | <i>s</i>                                                        | 50 54.32                 | + 1.65                   | 55.97                                | 30.78                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2285             | + 16 14     | S                                                                   | <i>Q</i> + 1.39                                                 | 40 1.89                  | + 1.49                   | 3.38                                 | S                                                                 | <i>Q</i> + 1.61                                                 | 53 32.55                 | + 1.62                   | 34.17                                | 30.79                                       | <i>m s</i><br>13 30.743 | +                                 | 0.011                                                                                                                  | 13 30.741           |
|                                                                                                                                                                      | 2330             | + 16 7      | S                                                                   |                                                                 | 48 8.99                  | + 1.49                   | 10.48                                | S                                                                 |                                                                 | 7 139.68                 | + 1.62                   | 41.30                                | 30.82                                       |                         |                                   |                                                                                                                        |                     |
| Jan. 24                                                                                                                                                              | 2350             | + 24 19     | N                                                                   | <i>I. P. E.</i>                                                 | 6 51 52.40               | - 1.23                   | 51.17                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 5 23.34                | - 1.43                   | 21.91                                | 13 30.74                                    |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2416             | + 36 59     | N                                                                   | <i>d</i><br>c + 0.1                                             | 7 046.68                 | - 1.12                   | 45.56                                | N                                                                 | <i>d</i><br>c - 2.1                                             | 14 17.33                 | - 1.12                   | 16.21                                | 30.65                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2431             | + 25 16     | N                                                                   | <i>b</i> + 5.1<br><i>a</i> - 14.3                               | 2 53.19                  | - 1.22                   | 51.97                                | N                                                                 | <i>b</i> + 7.6<br><i>a</i> - 47.3                               | 16 24.09                 | - 1.41                   | 22.68                                | 30.71                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2302             | + 16 21     | S                                                                   | <i>s</i>                                                        | 6 53 11.43               | - 1.28                   | 10.15                                | S                                                                 | <i>s</i>                                                        | 6 42.53                  | - 1.60                   | 40.93                                | 30.78                                       | <i>m s</i><br>13 30.715 | +                                 | 0.011                                                                                                                  | 13 30.713           |
|                                                                                                                                                                      | 2373             | + 3 19      | S                                                                   | <i>Q</i> - 1.39                                                 | 54 44.26                 | - 1.37                   | 42.89                                | S                                                                 | <i>Q</i> - 1.61                                                 | 8 15.45                  | - 1.85                   | 13.60                                | 30.71                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2398             | + 16 45     | S                                                                   |                                                                 | 57 54.52                 | - 1.28                   | 53.24                                | S                                                                 |                                                                 | 11 25.54                 | - 1.60                   | 23.94                                | 30.70                                       |                         |                                   |                                                                                                                        |                     |
| Jan. 24                                                                                                                                                              | 2841             | + 26 35     | N                                                                   | <i>I. P. W.</i>                                                 | 8 9 17.84                | + 1.49                   | 19.33                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 22 48.02               | + 1.84                   | 49.86                                | 13 30.53                                    |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2871             | + 36 49     | N                                                                   | <i>d</i><br>c - 2.5                                             | 13 42.94                 | + 1.58                   | 44.52                                | N                                                                 | <i>d</i><br>c - 2.1                                             | 27 12.98                 | + 2.09                   | 15.07                                | 30.55                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2912             | + 32 21     | N                                                                   | <i>b</i> + 4.2<br><i>a</i> - 17.6                               | 19 33.01                 | + 1.54                   | 34.55                                | N                                                                 | <i>b</i> + 7.6<br><i>a</i> - 47.3                               | 33 3.14                  | + 1.97                   | 5.11                                 | 30.56                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2863             | + 18 29     | S                                                                   | <i>s</i>                                                        | 11 25.09                 | + 1.43                   | 26.52                                | S                                                                 | <i>s</i>                                                        | 24 55.46                 | + 1.66                   | 57.12                                | 30.60                                       | <i>m s</i><br>13 30.573 | +                                 | 0.011                                                                                                                  | 13 30.571           |
|                                                                                                                                                                      | 2889             | + 7 2       | S                                                                   | <i>Q</i> + 1.39                                                 | 16 7.29                  | + 1.34                   | 8.63                                 | S                                                                 | <i>Q</i> + 1.61                                                 | 29 37.79                 | + 1.45                   | 39.24                                | 30.61                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2899             | + 19 40     | S                                                                   |                                                                 | 17 34.10                 | + 1.44                   | 35.54                                | S                                                                 |                                                                 | 31 4.44                  | + 1.69                   | 6.13                                 | 30.59                                       |                         |                                   |                                                                                                                        |                     |
| Jan. 24                                                                                                                                                              | 2984             | + 33 44     | N                                                                   | <i>I. P. W.</i>                                                 | 8 29 48.84               | - 1.23                   | 47.61                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 43 19.38               | - 1.21                   | 18.17                                | 13 30.56                                    |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 3002             | + 28 46     | N                                                                   | <i>d</i><br>c - 2.5                                             | 32 10.25                 | - 1.26                   | 8.99                                 | N                                                                 | <i>d</i><br>c - 2.1                                             | 45 40.88                 | - 1.33                   | 39.55                                | 30.56                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 3016             | + 31 1      | N                                                                   | <i>b</i> + 4.2<br><i>a</i> - 17.6                               | 33 38.95                 | - 1.25                   | 37.70                                | N                                                                 | <i>b</i> + 7.6<br><i>a</i> - 47.3                               | 47 9.58                  | - 1.28                   | 8.30                                 | 30.60                                       | <i>m s</i><br>13 30.615 | +                                 | 0.011                                                                                                                  | 13 30.613           |
|                                                                                                                                                                      | 2942             | + 13 6      | S                                                                   | <i>s</i>                                                        | 23 17.77                 | - 1.39                   | 16.38                                | S                                                                 | <i>s</i>                                                        | 36 48.69                 | - 1.67                   | 47.02                                | 30.64                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2958             | + 10 30     | S                                                                   | <i>Q</i> - 1.39                                                 | 24 56.30                 | - 1.41                   | 54.89                                | S                                                                 | <i>Q</i> - 1.61                                                 | 38 27.25                 | - 1.71                   | 25.54                                | 30.65                                       |                         |                                   |                                                                                                                        |                     |
|                                                                                                                                                                      | 2970             | + 12 33     | S                                                                   |                                                                 | 27 3.46                  | - 1.39                   | 2.07                                 | S                                                                 |                                                                 | 40 34.42                 | - 1.67                   | 32.75                                | 30.68                                       |                         |                                   |                                                                                                                        |                     |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\omega t$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + p$ \*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND CHITTAGONG (W) Lat. 22° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 51 <sup>s</sup> . |                  |                  |                                                                     |                                                                                      |                          |                          |                                     |                                                                   |                                                                                      |                          |                          |                                     |                                             |                     |                                   |                                                                                                                                                    |                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--|
| Astronomical Date                                                                                                                                                    | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                                      |                          |                          |                                     | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                                      |                          |                          |                                     | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrus. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .019<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .007 | δ L <sub>N</sub> + p |  |
|                                                                                                                                                                      | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                      | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                      | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                      |  |
| 1884                                                                                                                                                                 |                  | ° '              |                                                                     |                                                                                      | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            |                                                                   |                                                                                      | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                      |  |
| Jan. 25                                                                                                                                                              | 2278             | + 26 4           | N                                                                   | <i>I. P. W.</i>                                                                      | 6 38 <sup>43</sup> .48   | + 1 <sup>.45</sup>       | 44 <sup>.93</sup>                   | N                                                                 | <i>I. P. W.</i>                                                                      | 6 52 13 <sup>.70</sup>   | + 1 <sup>.78</sup>       | 15 <sup>.48</sup>                   | 13 30 <sup>.55</sup>                        |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2301             | + 29 32          | N                                                                   | <i>d</i>                                                                             | 42 33 <sup>.44</sup>     | + 1 <sup>.49</sup>       | 34 <sup>.93</sup>                   | N                                                                 | <i>d</i>                                                                             | 56 3 <sup>.48</sup>      | + 1 <sup>.87</sup>       | 5 <sup>.35</sup>                    | 30 <sup>.42</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2313             | + 22 49          | N                                                                   | <i>c - 3<sup>.9</sup></i><br><i>b + 3<sup>.1</sup></i><br><i>a - 24<sup>.4</sup></i> | 44 44 <sup>.69</sup>     | + 1 <sup>.41</sup>       | 46 <sup>.10</sup>                   | N                                                                 | <i>c + 0<sup>.9</sup></i><br><i>b + 3<sup>.4</sup></i><br><i>a - 54<sup>.5</sup></i> | 58 14 <sup>.88</sup>     | + 1 <sup>.69</sup>       | 16 <sup>.57</sup>                   | 30 <sup>.47</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2271             | + 18 3           | S                                                                   | <i>s</i>                                                                             | 37 22 <sup>.79</sup>     | + 1 <sup>.36</sup>       | 24 <sup>.15</sup>                   | S                                                                 | <i>s</i>                                                                             | 50 53 <sup>.13</sup>     | + 1 <sup>.58</sup>       | 54 <sup>.71</sup>                   | 30 <sup>.56</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2285             | + 16 14          | S                                                                   | <i>Q + 1<sup>.39</sup></i>                                                           | 40 1 <sup>.12</sup>      | + 1 <sup>.34</sup>       | 2 <sup>.46</sup>                    | S                                                                 | <i>Q + 1<sup>.58</sup></i>                                                           | 53 31 <sup>.41</sup>     | + 1 <sup>.54</sup>       | 32 <sup>.95</sup>                   | 30 <sup>.49</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2330             | + 16 7           | S                                                                   |                                                                                      | 48 8 <sup>.11</sup>      | + 1 <sup>.34</sup>       | 9 <sup>.45</sup>                    | S                                                                 |                                                                                      | 7 1 38 <sup>.45</sup>    | + 1 <sup>.54</sup>       | 39 <sup>.99</sup>                   | 30 <sup>.54</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
| Jan. 25                                                                                                                                                              | 2350             | + 24 19          | N                                                                   | <i>I. P. W.</i>                                                                      | 6 51 51 <sup>.44</sup>   | - 1 <sup>.35</sup>       | 50 <sup>.09</sup>                   | N                                                                 | <i>I. P. W.</i>                                                                      | 7 5 22 <sup>.11</sup>    | - 1 <sup>.44</sup>       | 20 <sup>.67</sup>                   | 13 30 <sup>.58</sup>                        |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2416             | + 36 59          | N                                                                   | <i>d</i>                                                                             | 7 0 45 <sup>.67</sup>    | - 1 <sup>.21</sup>       | 44 <sup>.46</sup>                   | N                                                                 | <i>d</i>                                                                             | 14 16 <sup>.04</sup>     | - 1 <sup>.07</sup>       | 14 <sup>.97</sup>                   | 30 <sup>.51</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2431             | + 25 16          | N                                                                   | <i>c - 3<sup>.9</sup></i><br><i>b + 3<sup>.1</sup></i><br><i>a - 24<sup>.4</sup></i> | 2 52 <sup>.23</sup>      | - 1 <sup>.34</sup>       | 50 <sup>.89</sup>                   | N                                                                 | <i>c + 0<sup>.9</sup></i><br><i>b + 3<sup>.4</sup></i><br><i>a - 54<sup>.5</sup></i> | 16 22 <sup>.78</sup>     | - 1 <sup>.41</sup>       | 21 <sup>.37</sup>                   | 30 <sup>.48</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2362             | + 16 21          | S                                                                   | <i>s</i>                                                                             | 6 53 10 <sup>.58</sup>   | - 1 <sup>.43</sup>       | 9 <sup>.15</sup>                    | S                                                                 | <i>s</i>                                                                             | 6 41 <sup>.32</sup>      | - 1 <sup>.62</sup>       | 39 <sup>.70</sup>                   | 30 <sup>.55</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2373             | + 3 19           | S                                                                   | <i>Q - 1<sup>.39</sup></i>                                                           | 54 43 <sup>.33</sup>     | - 1 <sup>.56</sup>       | 41 <sup>.77</sup>                   | S                                                                 | <i>Q - 1<sup>.58</sup></i>                                                           | 8 14 <sup>.24</sup>      | - 1 <sup>.89</sup>       | 12 <sup>.35</sup>                   | 30 <sup>.58</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2398             | + 16 45          | S                                                                   |                                                                                      | 57 53 <sup>.57</sup>     | - 1 <sup>.43</sup>       | 52 <sup>.14</sup>                   | S                                                                 |                                                                                      | 11 24 <sup>.33</sup>     | - 1 <sup>.61</sup>       | 22 <sup>.72</sup>                   | 30 <sup>.58</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
| Jan. 25                                                                                                                                                              | 2841             | + 26 35          | N                                                                   | <i>I. P. E.</i>                                                                      | 8 9 16 <sup>.61</sup>    | + 1 <sup>.64</sup>       | 18 <sup>.25</sup>                   | N                                                                 | <i>I. P. W.</i>                                                                      | 8 22 46 <sup>.93</sup>   | + 1 <sup>.79</sup>       | 48 <sup>.72</sup>                   | 13 30 <sup>.47</sup>                        |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2871             | + 36 49          | N                                                                   | <i>d</i>                                                                             | 13 41 <sup>.68</sup>     | + 1 <sup>.78</sup>       | 43 <sup>.46</sup>                   | N                                                                 | <i>d</i>                                                                             | 27 11 <sup>.79</sup>     | + 2 <sup>.08</sup>       | 13 <sup>.87</sup>                   | 30 <sup>.41</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2912             | + 32 21          | N                                                                   | <i>c + 1<sup>.9</sup></i><br><i>b + 5<sup>.0</sup></i><br><i>a - 23<sup>.9</sup></i> | 19 31 <sup>.74</sup>     | + 1 <sup>.72</sup>       | 33 <sup>.46</sup>                   | N                                                                 | <i>c + 0<sup>.9</sup></i><br><i>b + 3<sup>.4</sup></i><br><i>a - 54<sup>.5</sup></i> | 33 1 <sup>.94</sup>      | + 1 <sup>.95</sup>       | 3 <sup>.89</sup>                    | 30 <sup>.43</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2853             | + 18 29          | S                                                                   | <i>s</i>                                                                             | 11 23 <sup>.93</sup>     | + 1 <sup>.55</sup>       | 25 <sup>.48</sup>                   | S                                                                 | <i>s</i>                                                                             | 24 54 <sup>.36</sup>     | + 1 <sup>.59</sup>       | 55 <sup>.95</sup>                   | 30 <sup>.47</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2880             | + 7 2            | S                                                                   | <i>Q + 1<sup>.39</sup></i>                                                           | 16 6 <sup>.05</sup>      | + 1 <sup>.43</sup>       | 7 <sup>.48</sup>                    | S                                                                 | <i>Q + 1<sup>.58</sup></i>                                                           | 29 36 <sup>.63</sup>     | + 1 <sup>.34</sup>       | 37 <sup>.97</sup>                   | 30 <sup>.49</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2899             | + 19 40          | S                                                                   |                                                                                      | 17 32 <sup>.83</sup>     | + 1 <sup>.57</sup>       | 34 <sup>.40</sup>                   | S                                                                 |                                                                                      | 31 3 <sup>.22</sup>      | + 1 <sup>.62</sup>       | 4 <sup>.84</sup>                    | 30 <sup>.44</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
| Jan. 25                                                                                                                                                              | 2984             | + 33 44          | N                                                                   | <i>I. P. E.</i>                                                                      | 8 29 47 <sup>.66</sup>   | - 1 <sup>.04</sup>       | 46 <sup>.62</sup>                   | N                                                                 | <i>I. P. W.</i>                                                                      | 8 43 18 <sup>.15</sup>   | - 1 <sup>.18</sup>       | 16 <sup>.97</sup>                   | 13 30 <sup>.35</sup>                        |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 3002             | + 28 46          | N                                                                   | <i>d</i>                                                                             | 32 9 <sup>.10</sup>      | - 1 <sup>.10</sup>       | 8 <sup>.00</sup>                    | N                                                                 | <i>d</i>                                                                             | 45 39 <sup>.65</sup>     | - 1 <sup>.31</sup>       | 38 <sup>.34</sup>                   | 30 <sup>.34</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 3016             | + 31 1           | N                                                                   | <i>c + 1<sup>.9</sup></i><br><i>b + 5<sup>.0</sup></i><br><i>a - 23<sup>.9</sup></i> | 33 37 <sup>.76</sup>     | - 1 <sup>.08</sup>       | 36 <sup>.68</sup>                   | N                                                                 | <i>c + 0<sup>.9</sup></i><br><i>b + 3<sup>.4</sup></i><br><i>a - 54<sup>.5</sup></i> | 47 8 <sup>.37</sup>      | - 1 <sup>.25</sup>       | 7 <sup>.12</sup>                    | 30 <sup>.44</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2942             | + 13 6           | S                                                                   | <i>s</i>                                                                             | 23 16 <sup>.62</sup>     | - 1 <sup>.28</sup>       | 15 <sup>.34</sup>                   | S                                                                 | <i>s</i>                                                                             | 36 47 <sup>.48</sup>     | - 1 <sup>.68</sup>       | 45 <sup>.80</sup>                   | 30 <sup>.46</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2958             | + 10 30          | S                                                                   | <i>Q - 1<sup>.39</sup></i>                                                           | 24 55 <sup>.10</sup>     | - 1 <sup>.32</sup>       | 53 <sup>.78</sup>                   | S                                                                 | <i>Q - 1<sup>.58</sup></i>                                                           | 38 26 <sup>.02</sup>     | - 1 <sup>.74</sup>       | 24 <sup>.28</sup>                   | 30 <sup>.50</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |
|                                                                                                                                                                      | 2970             | + 12 33          | S                                                                   |                                                                                      | 27 2 <sup>.35</sup>      | - 1 <sup>.30</sup>       | 1 <sup>.05</sup>                    | S                                                                 |                                                                                      | 40 33 <sup>.17</sup>     | - 1 <sup>.69</sup>       | 31 <sup>.48</sup>                   | 30 <sup>.43</sup>                           |                     |                                   |                                                                                                                                                    |                      |  |

NOTE.—1<sup>s</sup> = 0<sup>s</sup>.0225. Transcribing Equation *not*, all records having been transcribed by the same person.\*  $p$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND CHITTAGONG (W) Lat. 23° 20', Long. 6 <sup>h</sup> 7 <sup>m</sup> 31 <sup>s</sup> . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                |                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|--------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                    | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviride, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$H_N - H_S = + 0.019$<br>$S_N - S_S = - 0.007$ | $\delta L_N + \rho$ |
|                                                                                                                                                                      | B A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                |                     |
| 1884                                                                                                                                                                 |                  | ° ' "       |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                |                     |
| Jan. 26                                                                                                                                                              | 2278             | + 26 4      | N                                                                   | <i>I. P. E.</i>                                                 | 6 38 42.17               | + 1.80                   | 43.97                                | N                                                                 | <i>I. P. E.</i>                                                 | 6 52 13.26               | + 1.56                   | 14.82                                | 13 30.85                                    |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2301             | + 29 32     | N                                                                   | <i>c - d</i>                                                    | 42 32.02                 | + 1.86                   | 33.88                                | N                                                                 | <i>c - d</i>                                                    | 56 3.15                  | + 1.57                   | 4.72                                 | 30.84                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2313             | + 22 49     | N                                                                   | <i>b + 3.0</i><br><i>a - 28.2</i>                               | 44 43.33                 | + 1.76                   | 45.09                                | N                                                                 | <i>b - 0.4</i><br><i>a - 4.8</i>                                | 58 14.32                 | + 1.55                   | 15.87                                | 30.78                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2271             | + 18 3      | S                                                                   | <i>s</i>                                                        | 37 21.50                 | + 1.71                   | 23.21                                | S                                                                 | <i>s</i>                                                        | 50 52.52                 | + 1.54                   | 54.06                                | 30.85                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2285             | + 16 14     | S                                                                   | <i>Q + 1.70</i>                                                 | 39 59.75                 | + 1.69                   | 61.44                                | S                                                                 | <i>Q + 1.60</i>                                                 | 53 30.74                 | + 1.54                   | 32.28                                | 30.84                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2330             | + 16 7      | S                                                                   |                                                                 | 48 6.82                  | + 1.69                   | 8.51                                 | S                                                                 |                                                                 | 7 1 37.78                | + 1.54                   | 39.32                                | 30.81                                       |                     |                                   |                                                                                |                     |
| Jan. 26                                                                                                                                                              | 2350             | + 24 19     | N                                                                   | <i>I. P. E.</i>                                                 | 6 51 50.79               | - 1.63                   | 49.16                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 5 21.71                | - 1.65                   | 20.06                                | 13 30.90                                    |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2416             | + 36 59     | N                                                                   | <i>c - d</i>                                                    | 7 045.08                 | - 1.43                   | 43.65                                | N                                                                 | <i>c - d</i>                                                    | 14 16.00                 | - 1.62                   | 14.38                                | 30.73                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2431             | + 25 16     | N                                                                   | <i>b + 3.0</i><br><i>a - 28.2</i>                               | 2 51.70                  | - 1.61                   | 50.09                                | N                                                                 | <i>b - 0.4</i><br><i>a - 4.8</i>                                | 16 22.43                 | - 1.64                   | 20.79                                | 30.70                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2362             | + 16 21     | S                                                                   | <i>s</i>                                                        | 6 53 9.97                | - 1.71                   | 8.26                                 | S                                                                 | <i>s</i>                                                        | 6 40.68                  | - 1.66                   | 39.02                                | 30.76                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2373             | + 3 19      | S                                                                   | <i>Q - 1.70</i>                                                 | 54 42.75                 | - 1.85                   | 40.90                                | S                                                                 | <i>Q - 1.60</i>                                                 | 8 13.49                  | - 1.68                   | 11.81                                | 30.91                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2398             | + 16 45     | S                                                                   |                                                                 | 57 52.92                 | - 1.71                   | 51.21                                | S                                                                 |                                                                 | 11 23.77                 | - 1.66                   | 22.11                                | 30.90                                       |                     |                                   |                                                                                |                     |
| Jan. 26                                                                                                                                                              | 2841             | + 26 35     | N                                                                   | <i>I. P. W.</i>                                                 | 8 9 15.78                | + 1.73                   | 17.51                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 22 46.54               | + 1.56                   | 48.10                                | 13 30.59                                    |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2871             | + 36 49     | N                                                                   | <i>c - d</i>                                                    | 13 40.99                 | + 1.80                   | 42.79                                | N                                                                 | <i>c - d</i>                                                    | 27 11.70                 | + 1.58                   | 13.28                                | 30.49                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2012             | + 32 21     | N                                                                   | <i>b + 0.2</i><br><i>a - 13.3</i>                               | 19 31.06                 | + 1.77                   | 32.83                                | N                                                                 | <i>b - 0.4</i><br><i>a - 4.8</i>                                | 33 1.72                  | + 1.57                   | 3.29                                 | 30.46                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2853             | + 18 29     | S                                                                   | <i>s</i>                                                        | 11 23.10                 | + 1.68                   | 24.78                                | S                                                                 | <i>s</i>                                                        | 24 53.78                 | + 1.54                   | 55.32                                | 30.54                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2889             | + 7 2       | S                                                                   | <i>Q + 1.70</i>                                                 | 16 5.21                  | + 1.62                   | 6.83                                 | S                                                                 | <i>Q + 1.60</i>                                                 | 29 35.91                 | + 1.53                   | 33.44                                | 30.61                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2899             | + 19 40     | S                                                                   |                                                                 | 17 32.04                 | + 1.69                   | 33.73                                | S                                                                 |                                                                 | 31 2.71                  | + 1.54                   | 4.25                                 | 30.52                                       |                     |                                   |                                                                                |                     |
| Jan. 26                                                                                                                                                              | 2984             | + 33 44     | N                                                                   | <i>I. P. W.</i>                                                 | 8 29 47.51               | - 1.62                   | 45.89                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 43 17.99               | - 1.62                   | 16.37                                | 13 30.48                                    |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 3002             | + 28 46     | N                                                                   | <i>c - d</i>                                                    | 32 8.90                  | - 1.65                   | 7.25                                 | N                                                                 | <i>c - d</i>                                                    | 45 39.40                 | - 1.64                   | 37.76                                | 30.51                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 3016             | + 31 1      | N                                                                   | <i>b + 0.2</i><br><i>a - 13.3</i>                               | 33 37.63                 | - 1.64                   | 35.99                                | N                                                                 | <i>b - 0.4</i><br><i>a - 4.8</i>                                | 47 8.07                  | - 1.63                   | 6.44                                 | 30.45                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2942             | + 13 6      | S                                                                   | <i>s</i>                                                        | 23 16.45                 | - 1.75                   | 14.70                                | S                                                                 | <i>s</i>                                                        | 36 46.77                 | - 1.66                   | 45.11                                | 30.41                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2958             | + 10 30     | S                                                                   | <i>Q - 1.70</i>                                                 | 24 54.87                 | - 1.76                   | 53.11                                | S                                                                 | <i>Q - 1.60</i>                                                 | 38 25.28                 | - 1.66                   | 23.62                                | 30.51                                       |                     |                                   |                                                                                |                     |
|                                                                                                                                                                      | 2970             | + 12 33     | S                                                                   |                                                                 | 27 2.08                  | - 1.75                   | 0.33                                 | S                                                                 |                                                                 | 40 32.52                 | - 1.66                   | 30.86                                | 30.53                                       |                     |                                   |                                                                                |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ ; AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |                  |                  |                                                                      |                                                                 |                          |                          |                                      |                                                                    |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |                     |
|------------------------------------------------------------------------------------------------------------------------|------------------|------------------|----------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                      | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescopes No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescopes No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrus. for Peral. Equations<br>$H_N - H_S = +0.019$<br>$S_N - S_S = -0.007$ | $\delta L_N + \rho$ |
|                                                                                                                        | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                        | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                      | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |                     |
| 1884                                                                                                                   |                  | ° ' "            |                                                                      |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                    |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |                     |
| Jan. 29                                                                                                                | 2278             | + 26 4           | N                                                                    | <i>I. P. W.</i>                                                 | 6 38 39.47               | +1.50                    | 40.97                                | N                                                                  | <i>I. P. W.</i>                                                 | 6 52 9.87                | +1.47                    | 11.34                                | 13 30.37                                    |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2301             | + 29 32          | N                                                                    | <i>d</i>                                                        | 42 29.40                 | +1.52                    | 30.92                                | N                                                                  | <i>d</i>                                                        | 55 59.78                 | +1.48                    | 61.26                                | 30.34                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2313             | + 22 49          | N                                                                    | <i>c - 2.5</i><br><i>b - 4.6</i><br><i>a - 18.5</i>             | 44 40.60                 | +1.47                    | 42.07                                | N                                                                  | <i>c - 0.8</i><br><i>b - 4.9</i><br><i>a - 16.1</i>             | 58 10.99                 | +1.44                    | 12.43                                | 30.36                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2271             | + 18 3           | S                                                                    | <i>s</i>                                                        | 37 18.86                 | +1.43                    | 20.29                                | S                                                                  | <i>s</i>                                                        | 50 49.22                 | +1.41                    | 50.63                                | 30.34                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2285             | + 16 14          | S                                                                    | <i>Q + 1.61</i>                                                 | 39 56.99                 | +1.42                    | 58.41                                | S                                                                  | <i>Q + 1.58</i>                                                 | 53 27.48                 | +1.41                    | 28.89                                | 30.48                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2330             | + 16 7           | S                                                                    |                                                                 | 48 4.08                  | +1.42                    | 5.50                                 | S                                                                  |                                                                 | 7 134.52                 | +1.41                    | 35.93                                | 30.43                                       |                     |                                   |                                                                              |                     |
| Jan. 29                                                                                                                | 2350             | + 24 19          | N                                                                    | <i>I. P. W.</i>                                                 | 6 51 47.90               | -1.74                    | 46.16                                | N                                                                  | <i>I. P. W.</i>                                                 | 7 5 18.30                | -1.71                    | 16.59                                | 13 30.43                                    |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2416             | + 36 59          | N                                                                    | <i>d</i>                                                        | 7 042.18                 | -1.64                    | 40.54                                | N                                                                  | <i>d</i>                                                        | 14 12.51                 | -1.62                    | 10.89                                | 30.35                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2431             | + 25 16          | N                                                                    | <i>c - 2.5</i><br><i>b - 4.6</i><br><i>a - 18.5</i>             | 2 48.67                  | -1.73                    | 46.94                                | N                                                                  | <i>c - 0.8</i><br><i>b - 4.9</i><br><i>a - 16.1</i>             | 16 19.03                 | -1.70                    | 17.33                                | 30.39                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2362             | + 16 21          | S                                                                    | <i>s</i>                                                        | 6 53 7.09                | -1.80                    | 5.29                                 | S                                                                  | <i>s</i>                                                        | 6 37.39                  | -1.75                    | 35.64                                | 30.35                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2373             | + 3 19           | S                                                                    | <i>Q - 1.61</i>                                                 | 54 39.84                 | -1.88                    | 37.96                                | S                                                                  | <i>Q - 1.58</i>                                                 | 8 10.10                  | -1.82                    | 8.28                                 | 30.32                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2398             | + 16 45          | S                                                                    |                                                                 | 57 50.05                 | -1.80                    | 48.25                                | S                                                                  |                                                                 | 11 20.35                 | -1.75                    | 18.60                                | 30.35                                       |                     |                                   |                                                                              |                     |
| Jan. 20                                                                                                                | 2841             | + 26 35          | N                                                                    | <i>I. P. E.</i>                                                 | 8 9 12.60                | +1.47                    | 14.07                                | N                                                                  | <i>I. P. W.</i>                                                 | 8 22 43.09               | +1.47                    | 44.56                                | 13 30.49                                    |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2871             | + 36 49          | N                                                                    | <i>d</i>                                                        | 13 37.88                 | +1.58                    | 39.46                                | N                                                                  | <i>d</i>                                                        | 27 8.22                  | +1.54                    | 9.76                                 | 30.30                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2912             | + 32 21          | N                                                                    | <i>c - 0.4</i><br><i>b - 8.8</i><br><i>a - 25.1</i>             | 19 27.90                 | +1.53                    | 29.43                                | N                                                                  | <i>c - 0.8</i><br><i>b - 4.9</i><br><i>a - 16.1</i>             | 32 58.32                 | +1.51                    | 59.83                                | 30.40                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2853             | + 18 29          | S                                                                    | <i>s</i>                                                        | 11 19.98                 | +1.38                    | 21.36                                | S                                                                  | <i>s</i>                                                        | 24 50.41                 | +1.41                    | 51.82                                | 30.46                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2889             | + 7 2            | S                                                                    | <i>Q + 1.61</i>                                                 | 16 2.07                  | +1.28                    | 3.35                                 | S                                                                  | <i>Q + 1.58</i>                                                 | 29 32.55                 | +1.35                    | 33.90                                | 30.55                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2899             | + 19 40          | S                                                                    |                                                                 | 17 28.92                 | +1.40                    | 30.32                                | S                                                                  |                                                                 | 30 59.37                 | +1.42                    | 60.79                                | 30.47                                       |                     |                                   |                                                                              |                     |
| Jan. 20                                                                                                                | 2984             | + 33 44          | N                                                                    | <i>I. P. E.</i>                                                 | 8 29 44.20               | -1.67                    | 42.53                                | N                                                                  | <i>I. P. W.</i>                                                 | 8 43 14.53               | -1.64                    | 12.89                                | 13 30.36                                    |                     |                                   |                                                                              |                     |
|                                                                                                                        | 8002             | + 28 46          | N                                                                    | <i>d</i>                                                        | 32 5.57                  | -1.73                    | 3.84                                 | N                                                                  | <i>d</i>                                                        | 45 35.90                 | -1.67                    | 34.23                                | 30.39                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 8016             | + 31 1           | N                                                                    | <i>c - 0.4</i><br><i>b - 8.8</i><br><i>a - 25.1</i>             | 33 34.31                 | -1.71                    | 32.60                                | N                                                                  | <i>c - 0.8</i><br><i>b - 4.9</i><br><i>a - 16.1</i>             | 47 4.65                  | -1.67                    | 2.98                                 | 30.38                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2942             | + 13 6           | S                                                                    | <i>s</i>                                                        | 23 13.13                 | -1.88                    | 11.25                                | S                                                                  | <i>s</i>                                                        | 36 43.49                 | -1.77                    | 41.72                                | 30.47                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2958             | + 10 30          | S                                                                    | <i>Q - 1.61</i>                                                 | 24 51.61                 | -1.90                    | 49.71                                | S                                                                  | <i>Q - 1.58</i>                                                 | 38 21.97                 | -1.79                    | 20.18                                | 30.47                                       |                     |                                   |                                                                              |                     |
|                                                                                                                        | 2970             | + 12 33          | S                                                                    |                                                                 | 26 58.85                 | -1.88                    | 56.97                                | S                                                                  |                                                                 | 40 29.22                 | -1.77                    | 27.45                                | 30.48                                       |                     |                                   |                                                                              |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ : AND CHITTAGONG (W) Lat. $22^\circ 20'$ , Long. $6^h 7^m 31^s$ . |                  |             |                                                              |                                                                 |                          |                          |                                     |                                                            |                                                                 |                          |                          |                                     |                                             |                     |                                   |                                                                                   |
|------------------------------------------------------------------------------------------------------------------------|------------------|-------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|
| Astronomical Date                                                                                                      | STAR             |             | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                     | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                     | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = + 0^s.019$<br>$S_N - S_S = - 0^s.007$ |
|                                                                                                                        | B.A.C.<br>Number | Declination | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |
| 1884                                                                                                                   |                  |             |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            | <i>m s</i>                                  |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2278             | + 26 4      | N                                                            | <i>I. P. E.</i>                                                 | 6 38 38.02               | + 1.62                   | 39.64                               | N                                                          | <i>I. P. E.</i>                                                 | 6 52 8.75                | + 1.59                   | 10.34                               | 13 30.70                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 2301             | + 29 32     | N                                                            | <i>c - 1.1</i><br><i>d</i>                                      | 42 27.92                 | + 1.61                   | 29.53                               | N                                                          | <i>c - 1.2</i><br><i>d</i>                                      | 55 58.70                 | + 1.61                   | 60.31                               | 30.78                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2313             | + 22 49     | N                                                            | <i>b + 2.2</i><br><i>a + 7.9</i>                                | 44 39.09                 | + 1.63                   | 40.72                               | N                                                          | <i>b + 1.3</i><br><i>a - 9.3</i>                                | 58 9.84                  | + 1.58                   | 11.42                               | 30.70                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2271             | + 18 3      | S                                                            | <i>Q + 1.62</i>                                                 | 37 17.22                 | + 1.64                   | 18.86                               | S                                                          | <i>Q + 1.58</i>                                                 | 50 48.11                 | + 1.56                   | 49.67                               | 30.81                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2285             | + 16 14     | S                                                            |                                                                 | 39 55.46                 | + 1.65                   | 57.11                               | S                                                          |                                                                 | 53 26.27                 | + 1.56                   | 27.83                               | 30.72                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2330             | + 16 7      | S                                                            |                                                                 | 48 2.56                  | + 1.65                   | 4.21                                | S                                                          |                                                                 | 7 133.41                 | + 1.56                   | 34.97                               | 30.76                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2350             | + 24 19     | N                                                            | <i>I. P. E.</i>                                                 | 6 51 46.45               | - 1.62                   | 44.83                               | N                                                          | <i>I. P. E.</i>                                                 | 7 5 17.21                | - 1.57                   | 15.64                               | 13 30.81                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 2416             | + 36 59     | N                                                            | <i>c - 1.1</i><br><i>d</i>                                      | 7 040.91                 | - 1.66                   | 39.25                               | N                                                          | <i>c - 1.2</i><br><i>d</i>                                      | 14 11.41                 | - 1.50                   | 9.91                                | 30.66                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2431             | + 25 16     | N                                                            | <i>b + 2.2</i><br><i>a + 7.9</i>                                | 2 47.17                  | - 1.62                   | 45.55                               | N                                                          | <i>b + 1.3</i><br><i>a - 9.3</i>                                | 16 17.95                 | - 1.57                   | 16.38                               | 30.83                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2362             | + 16 21     | S                                                            | <i>Q - 1.62</i>                                                 | 6 53 5.47                | - 1.59                   | 3.88                                | S                                                          | <i>Q - 1.58</i>                                                 | 6 36.28                  | - 1.60                   | 34.68                               | 30.80                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2373             | + 3 19      | S                                                            |                                                                 | 54 38.11                 | - 1.54                   | 36.57                               | S                                                          |                                                                 | 8 8.96                   | - 1.65                   | 7.31                                | 30.74                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2398             | + 16 45     | S                                                            |                                                                 | 57 48.50                 | - 1.59                   | 46.91                               | S                                                          |                                                                 | 11 19.27                 | - 1.60                   | 17.67                               | 30.76                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2841             | + 26 35     | N                                                            | <i>I. P. W.</i>                                                 | 8 9 11.32                | + 1.74                   | 13.06                               | N                                                          | <i>I. P. E.</i>                                                 | 8 22 42.14               | + 1.60                   | 43.74                               | 13 30.68                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 2871             | + 36 49     | N                                                            | <i>c - 1.3</i><br><i>d</i>                                      | 13 36.54                 | + 1.76                   | 38.30                               | N                                                          | <i>c - 1.2</i><br><i>d</i>                                      | 27 7.23                  | + 1.66                   | 8.89                                | 30.59                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2012             | + 32 21     | N                                                            | <i>b + 5.6</i><br><i>a - 3.3</i>                                | 19 26.61                 | + 1.75                   | 28.36                               | N                                                          | <i>b + 1.3</i><br><i>a - 9.3</i>                                | 32 57.27                 | + 1.62                   | 58.89                               | 30.53                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2853             | + 18 29     | S                                                            | <i>Q + 1.62</i>                                                 | 11 18.59                 | + 1.72                   | 20.31                               | S                                                          | <i>Q + 1.58</i>                                                 | 24 49.37                 | + 1.57                   | 50.94                               | 30.63                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2889             | + 7 2       | S                                                            |                                                                 | 16 0.61                  | + 1.69                   | 2.30                                | S                                                          |                                                                 | 29 31.44                 | + 1.52                   | 32.96                               | 30.66                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2899             | + 19 40     | S                                                            |                                                                 | 17 27.53                 | + 1.72                   | 29.25                               | S                                                          |                                                                 | 30 58.29                 | + 1.57                   | 59.86                               | 30.61                                       |                     |                                   |                                                                                   |
| Jan. 30                                                                                                                | 2984             | + 33 44     | N                                                            | <i>I. P. W.</i>                                                 | 8 29 43.00               | - 1.49                   | 41.51                               | N                                                          | <i>I. P. E.</i>                                                 | 8 43 13.52               | - 1.53                   | 11.99                               | 13 30.48                                    |                     |                                   |                                                                                   |
|                                                                                                                        | 3002             | + 28 46     | N                                                            | <i>c - 1.3</i><br><i>d</i>                                      | 32 4.35                  | - 1.50                   | 2.85                                | N                                                          | <i>c - 1.2</i><br><i>d</i>                                      | 45 34.93                 | - 1.55                   | 33.38                               | 30.53                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 3016             | + 31 1      | N                                                            | <i>b + 5.6</i><br><i>a - 3.3</i>                                | 33 33.04                 | - 1.49                   | 31.55                               | N                                                          | <i>b + 1.3</i><br><i>a - 9.3</i>                                | 47 3.65                  | - 1.54                   | 2.11                                | 30.56                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2942             | + 13 6      | S                                                            | <i>Q - 1.62</i>                                                 | 23 11.70                 | - 1.53                   | 10.17                               | S                                                          | <i>Q - 1.58</i>                                                 | 36 42.45                 | - 1.61                   | 40.84                               | 30.67                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2958             | + 10 30     | S                                                            |                                                                 | 24 50.14                 | - 1.53                   | 48.61                               | S                                                          |                                                                 | 38 20.88                 | - 1.62                   | 19.26                               | 30.65                                       |                     |                                   |                                                                                   |
|                                                                                                                        | 2970             | + 12 33     | S                                                            |                                                                 | 26 57.44                 | - 1.53                   | 55.91                               | S                                                          |                                                                 | 40 28.13                 | - 1.62                   | 26.51                               | 30.60                                       |                     |                                   |                                                                                   |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. $18^\circ 49'$ , Long. $6^\circ 21' 2''$ ; AND AKYAB (W) Lat. $20^\circ 8'$ , Long. $6^\circ 11' 45''$ . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |
|-------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|
| Astronomical Date                                                                                                       | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heavyside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>$H_N - H_S = +0.021$<br>$E_N - E_S = -0.019$ |
|                                                                                                                         | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |
| 1884                                                                                                                    |                  | ° '              |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |
| Feb. 8                                                                                                                  | 2672             | + 28 7           | N                                                                   | <i>I. P. E.</i>                                                 | 7 57 17.41               | +1.55                    | 18.96                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 6 33.61                | +1.61                    | 35.22                                | 9 16.26                                     |                     |                                   |                                                                              |
|                                                                                                                         | 2688             | + 27 51          | N                                                                   | <i>d</i>                                                        | 59 24.33                 | +1.56                    | 25.89                                | N                                                                 | <i>d</i>                                                        | 8 40.55                  | +1.61                    | 42.16                                | 16.27                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2630             | + 16 6           | S                                                                   | <i>c + 0.2</i><br><i>b + 0.2</i><br><i>a + 8.7</i>              | 51 17.91                 | +1.58                    | 19.49                                | S                                                                 | <i>c - 0.4</i><br><i>b + 0.1</i><br><i>a - 16.3</i>             | 0 34.26                  | +1.52                    | 35.78                                | 16.29                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2649             | + 16 50          | S                                                                   | <i>s</i>                                                        | 52 48.04                 | +1.58                    | 49.62                                | S                                                                 | <i>s</i>                                                        | 2 4.44                   | +1.53                    | 5.97                                 | 16.35                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2650             | + 17 37          | S                                                                   | <i>Q + 1.57</i>                                                 | 55 2.07                  | +1.57                    | 3.64                                 | S                                                                 | <i>Q + 1.56</i>                                                 | 4 18.49                  | +1.53                    | 20.02                                | 16.38                                       |                     |                                   |                                                                              |
| Feb. 8                                                                                                                  | 2727             | + 26 11          | N                                                                   | <i>I. P. E.</i>                                                 | 8 4 9.31                 | -1.59                    | 7.72                                 | N                                                                 | <i>I. P. E.</i>                                                 | 8 13 25.59               | -1.53                    | 24.06                                | 9 16.34                                     |                     |                                   |                                                                              |
|                                                                                                                         | 2734             | + 32 49          | N                                                                   | <i>d</i>                                                        | 5 19.25                  | -1.61                    | 17.64                                | N                                                                 | <i>d</i>                                                        | 14 35.51                 | -1.47                    | 34.04                                | 16.40                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2748             | + 14 21          | S                                                                   | <i>c + 0.2</i><br><i>b + 0.2</i><br><i>a + 8.7</i>              | 6 49.53                  | -1.55                    | 47.98                                | S                                                                 | <i>c - 0.4</i><br><i>b + 0.1</i><br><i>a - 16.3</i>             | 16 5.85                  | -1.61                    | 4.24                                 | 16.26                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2759             | + 18 1           | S                                                                   | <i>s</i>                                                        | 8 29.52                  | -1.57                    | 27.95                                | S                                                                 | <i>s</i>                                                        | 17 45.87                 | -1.58                    | 44.29                                | 16.34                                       |                     |                                   |                                                                              |
|                                                                                                                         | 2778             | + 9 32           | S                                                                   | <i>Q - 1.57</i>                                                 | 11 10.22                 | -1.54                    | 8.68                                 | S                                                                 | <i>Q - 1.56</i>                                                 | 20 26.54                 | -1.64                    | 24.90                                | 16.22                                       |                     |                                   |                                                                              |
| Feb. 8                                                                                                                  | 3238             | + 34 10          | N                                                                   | <i>I. P. W.</i>                                                 | 9 24 36.36               | +1.37                    | 37.73                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 33 52.29               | +1.66                    | 53.95                                | 9 16.22                                     |                     |                                   |                                                                              |
|                                                                                                                         | 3246             | + 23 29          | N                                                                   | <i>d</i>                                                        | 25 59.73                 | +1.45                    | 61.18                                | N                                                                 | <i>d</i>                                                        | 35 15.90                 | +1.57                    | 17.47                                | 16.29                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3255             | + 28 53          | N                                                                   | <i>c - 3.0</i><br><i>b - 2.1</i><br><i>a + 11.6</i>             | 27 24.41                 | +1.41                    | 25.82                                | N                                                                 | <i>c - 0.4</i><br><i>b + 0.1</i><br><i>a - 16.3</i>             | 36 40.49                 | +1.61                    | 42.10                                | 16.28                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3227             | + 9 34           | S                                                                   | <i>s</i>                                                        | 23 8.22                  | +1.51                    | 9.73                                 | S                                                                 | <i>s</i>                                                        | 32 24.63                 | +1.48                    | 26.11                                | 16.38                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3270             | + 13 10          | S                                                                   | <i>Q + 1.59</i>                                                 | 29 35.46                 | +1.50                    | 36.96                                | S                                                                 | <i>Q + 1.56</i>                                                 | 38 51.80                 | +1.50                    | 53.30                                | 16.34                                       |                     |                                   |                                                                              |
| Feb. 8                                                                                                                  | 3331             | + 24 18          | N                                                                   | <i>I. P. W.</i>                                                 | 9 40 12.59               | -1.74                    | 10.85                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 49 28.83               | -1.54                    | 27.29                                | 9 16.44                                     |                     |                                   |                                                                              |
|                                                                                                                         | 3348             | + 21 8           | N                                                                   | <i>d</i>                                                        | 42 9.53                  | -1.72                    | 7.81                                 | N                                                                 | <i>d</i>                                                        | 51 25.73                 | -1.56                    | 24.17                                | 16.36                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3371             | + 26 33          | N                                                                   | <i>c - 3.0</i><br><i>b - 2.1</i><br><i>a + 11.6</i>             | 47 6.60                  | -1.76                    | 4.84                                 | N                                                                 | <i>c - 0.4</i><br><i>b + 0.1</i><br><i>a - 16.3</i>             | 56 22.77                 | -1.52                    | 21.25                                | 16.41                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3312             | + 10 25          | S                                                                   | <i>s</i>                                                        | 35 54.22                 | -1.67                    | 52.55                                | S                                                                 | <i>s</i>                                                        | 45 10.55                 | -1.63                    | 8.92                                 | 16.37                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3321             | + 14 33          | S                                                                   | <i>Q - 1.59</i>                                                 | 38 21.49                 | -1.69                    | 19.80                                | S                                                                 | <i>Q - 1.56</i>                                                 | 47 37.83                 | -1.61                    | 36.22                                | 16.42                                       |                     |                                   |                                                                              |
|                                                                                                                         | 3359             | + 4 53           | S                                                                   |                                                                 | 45 24.51                 | -1.65                    | 22.86                                | S                                                                 |                                                                 | 54 40.93                 | -1.67                    | 39.26                                | 16.40                                       |                     |                                   |                                                                              |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                   |                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                               | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .021<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .019 | δL <sub>N</sub> - ρ |
|                                                                                                                                                                 | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                   |                     |
| 1884                                                                                                                                                            |                  | ° ' "       |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                   |                     |
| Feb. 9                                                                                                                                                          | 2672             | + 28 7      | N                                                                   | <i>I. P. W.</i>                                                 | 7 57 14.88               | + 1.39                   | 16.27                                | N                                                                 | <i>I. P. W.</i>                                                 | 8 6 30.72                | + 1.51                   | 32.23                                | 9 15.96                                     |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2688             | + 27 51     | N                                                                   | <i>d</i>                                                        | 59 21.78                 | + 1.39                   | 23.17                                | N                                                                 | <i>d</i>                                                        | 8 37.61                  | + 1.50                   | 39.11                                | 15.94                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2639             | + 16 6      | S                                                                   | <i>c - 2.9</i><br><i>b - 1.3</i><br><i>a + 3.0</i>              | 51 15.38                 | + 1.40                   | 16.78                                | S                                                                 | <i>c - 2.9</i><br><i>b - 3.3</i><br><i>a - 16.1</i>             | 0 31.41                  | + 1.42                   | 32.83                                | 16.05                                       | <i>m s</i>          | 9 16.002                          | 0.024                                                                                                                                             |                     |
|                                                                                                                                                                 | 2649             | + 16 50     | S                                                                   | <i>s</i>                                                        | 52 45.51                 | + 1.40                   | 46.91                                | S                                                                 | <i>s</i>                                                        | 2 1.57                   | + 1.43                   | 3.00                                 | 16.09                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2659             | + 17 37     | S                                                                   | <i>Q + 1.50</i>                                                 | 54 59.58                 | + 1.40                   | 60.98                                | S                                                                 | <i>Q + 1.60</i>                                                 | 4 15.61                  | + 1.43                   | 17.04                                | 16.06                                       |                     |                                   |                                                                                                                                                   |                     |
| Feb. 9                                                                                                                                                          | 2718             | + 27 49     | N                                                                   | <i>I. P. W.</i>                                                 | 8 2 38.19                | - 1.61                   | 36.58                                | N                                                                 | <i>I. P. W.</i>                                                 | 8 11 54.17               | - 1.70                   | 52.47                                | 9 15.89                                     |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2727             | + 26 11     | N                                                                   | <i>d</i>                                                        | 4 6.68                   | - 1.61                   | 5.07                                 | N                                                                 | <i>d</i>                                                        | 13 22.78                 | - 1.71                   | 21.07                                | 16.00                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2734             | + 32 49     | N                                                                   | <i>c - 2.9</i><br><i>b - 1.3</i><br><i>a + 3.0</i>              | 5 16.65                  | - 1.63                   | 15.02                                | N                                                                 | <i>c - 2.9</i><br><i>b - 3.3</i><br><i>a - 16.1</i>             | 14 32.67                 | - 1.68                   | 30.99                                | 15.97                                       | <i>m s</i>          | 9 15.960                          | 0.020                                                                                                                                             |                     |
|                                                                                                                                                                 | 2748             | + 14 21     | S                                                                   | <i>s</i>                                                        | 6 46.91                  | - 1.59                   | 45.32                                | S                                                                 | <i>s</i>                                                        | 16 3.06                  | - 1.79                   | 1.27                                 | 15.95                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2759             | + 18 1      | S                                                                   | <i>Q - 1.50</i>                                                 | 8 26.84                  | - 1.60                   | 25.24                                | S                                                                 | <i>Q - 1.60</i>                                                 | 17 42.98                 | - 1.76                   | 41.22                                | 15.98                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 2778             | + 9 32      | S                                                                   |                                                                 | 11 7.54                  | - 1.59                   | 5.95                                 | S                                                                 |                                                                 | 20 23.73                 | - 1.81                   | 21.92                                | 15.97                                       |                     |                                   |                                                                                                                                                   |                     |
| Feb. 9                                                                                                                                                          | 3238             | + 34 10     | N                                                                   | <i>I. P. E.</i>                                                 | 9 24 33.69               | + 1.17                   | 34.86                                | N                                                                 | <i>I. P. W.</i>                                                 | 9 33 49.51               | + 1.54                   | 51.05                                | 9 16.19                                     |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3246             | + 23 29     | N                                                                   | <i>d</i>                                                        | 25 57.08                 | + 1.30                   | 58.38                                | N                                                                 | <i>d</i>                                                        | 35 12.98                 | + 1.47                   | 14.45                                | 16.07                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3255             | + 28 53     | N                                                                   | <i>c - 1.4</i><br><i>b - 5.4</i><br><i>a + 21.2</i>             | 27 21.72                 | + 1.22                   | 22.94                                | N                                                                 | <i>c - 2.9</i><br><i>b - 3.3</i><br><i>a - 16.1</i>             | 36 37.64                 | + 1.51                   | 39.15                                | 16.21                                       | <i>m s</i>          | 9 16.138                          | 0.016                                                                                                                                             |                     |
|                                                                                                                                                                 | 3227             | + 9 34      | S                                                                   | <i>s</i>                                                        | 23 5.47                  | + 1.43                   | 6.90                                 | S                                                                 | <i>s</i>                                                        | 32 21.65                 | + 1.39                   | 23.04                                | 16.14                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3270             | + 13 10     | S                                                                   | <i>Q + 1.50</i>                                                 | 29 32.76                 | + 1.40                   | 34.16                                | S                                                                 | <i>Q + 1.60</i>                                                 | 38 48.84                 | + 1.40                   | 50.24                                | 16.08                                       |                     |                                   |                                                                                                                                                   |                     |
| Feb. 9                                                                                                                                                          | 3331             | + 24 18     | N                                                                   | <i>I. P. E.</i>                                                 | 9 40 9.95                | - 1.71                   | 8.24                                 | N                                                                 | <i>I. P. W.</i>                                                 | 9 49 26.03               | - 1.72                   | 24.31                                | 9 16.07                                     |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3343             | + 21 8      | N                                                                   | <i>d</i>                                                        | 42 6.83                  | - 1.68                   | 5.15                                 | N                                                                 | <i>d</i>                                                        | 51 22.87                 | - 1.74                   | 21.13                                | 15.98                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3371             | + 26 33     | N                                                                   | <i>c - 1.4</i><br><i>b - 5.4</i><br><i>a + 21.2</i>             | 47 3.85                  | - 1.74                   | 2.11                                 | N                                                                 | <i>c - 2.9</i><br><i>b - 3.3</i><br><i>a - 16.1</i>             | 56 19.94                 | - 1.70                   | 18.24                                | 16.13                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3312             | + 10 25     | S                                                                   | <i>s</i>                                                        | 35 51.26                 | - 1.58                   | 49.68                                | S                                                                 | <i>s</i>                                                        | 45 7.70                  | - 1.80                   | 5.90                                 | 16.22                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3321             | + 14 33     | S                                                                   | <i>Q - 1.50</i>                                                 | 38 18.64                 | - 1.62                   | 17.02                                | S                                                                 | <i>Q - 1.60</i>                                                 | 47 34.95                 | - 1.79                   | 33.16                                | 16.14                                       |                     |                                   |                                                                                                                                                   |                     |
|                                                                                                                                                                 | 3359             | + 4 53      | S                                                                   |                                                                 | 45 21.56                 | - 1.54                   | 20.02                                | S                                                                 |                                                                 | 54 38.05                 | - 1.83                   | 36.22                                | 16.20                                       |                     |                                   |                                                                                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation #1, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                                                                                                          |          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Astronomical Date                                                                                                                                               | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .021<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .019<br>δL <sub>N</sub> - ρ |          |
|                                                                                                                                                                 | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                                                                                                          |          |
| 1884                                                                                                                                                            |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                                                                                                          |          |
| Feb. 12                                                                                                                                                         | 2632             | + 20 11          | N                                                                   | <i>I. P. E.</i>                                                 | 7 49 36.83               | + 1.63                   | 38.46                                | N                                                                 | <i>I. P. E.</i>                                                 | 7 58 53.22               | + 1.53                   | 54.75                                | 9 16.29                                     | <i>m s</i><br>9 16.338 | + 0.018                           | - 0.020                                                                                                                                                                  | 9 16.336 |
|                                                                                                                                                                 | 2672             | + 28 7           | N                                                                   | <i>c + 0.5</i><br><i>d</i>                                      | 57 6.79                  | + 1.59                   | 8.38                                 | N                                                                 | <i>c - 1.0</i><br><i>d</i>                                      | 8 6 23.08                | + 1.59                   | 24.67                                | 16.29                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2688             | + 27 51          | N                                                                   | <i>b + 5.4</i><br><i>a + 15.3</i>                               | 59 13.72                 | + 1.59                   | 15.31                                | N                                                                 | <i>b - 2.1</i><br><i>a - 19.9</i>                               | 8 30.07                  | + 1.59                   | 31.66                                | 16.35                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2639             | + 16 6           | S                                                                   | <i>s</i>                                                        | 51 7.28                  | + 1.66                   | 8.94                                 | S                                                                 | <i>s</i>                                                        | 0 23.81                  | + 1.50                   | 25.31                                | 16.37                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2619             | + 16 50          | S                                                                   | <i>Q + 1.50</i>                                                 | 52 37.45                 | + 1.65                   | 39.10                                | S                                                                 | <i>Q + 1.60</i>                                                 | 1 53.97                  | + 1.50                   | 55.47                                | 16.37                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2659             | + 17 37          | S                                                                   |                                                                 | 54 51.50                 | + 1.65                   | 53.15                                | S                                                                 |                                                                 | 4 8.00                   | + 1.51                   | 9.51                                 | 16.36                                       |                        |                                   |                                                                                                                                                                          |          |
| Feb. 12                                                                                                                                                         | 2718             | + 27 49          | N                                                                   | <i>I. P. E.</i>                                                 | 8 230.20                 | - 1.41                   | 28.79                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 11 46.61               | - 1.61                   | 45.00                                | 9 16.21                                     | <i>m s</i><br>9 16.290 | + 0.018                           | - 0.020                                                                                                                                                                  | 9 16.288 |
|                                                                                                                                                                 | 2727             | + 26 11          | N                                                                   | <i>c + 0.5</i><br><i>d</i>                                      | 3 58.66                  | - 1.41                   | 57.25                                | N                                                                 | <i>c - 1.0</i><br><i>d</i>                                      | 13 15.18                 | - 1.63                   | 13.55                                | 16.30                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2734             | + 32 49          | N                                                                   | <i>b + 5.4</i><br><i>a + 15.3</i>                               | 5 8.68                   | - 1.45                   | 7.23                                 | N                                                                 | <i>b - 2.1</i><br><i>a - 19.9</i>                               | 14 25.07                 | - 1.56                   | 23.51                                | 16.28                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2748             | + 14 21          | S                                                                   | <i>s</i>                                                        | 6 38.84                  | - 1.33                   | 37.51                                | S                                                                 | <i>s</i>                                                        | 15 55.53                 | - 1.72                   | 53.81                                | 16.30                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2750             | + 18 1           | S                                                                   | <i>Q - 1.50</i>                                                 | 8 18.80                  | - 1.36                   | 17.44                                | S                                                                 | <i>Q - 1.60</i>                                                 | 17 35.49                 | - 1.69                   | 33.80                                | 16.36                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 2778             | + 9 32           | S                                                                   |                                                                 | 10 59.43                 | - 1.31                   | 58.12                                | S                                                                 |                                                                 | 20 16.16                 | - 1.75                   | 14.41                                | 16.29                                       |                        |                                   |                                                                                                                                                                          |          |
| Feb. 12                                                                                                                                                         | 3238             | + 34 10          | N                                                                   | <i>I. P. W.</i>                                                 | 9 24 26.03               | + 1.45                   | 27.48                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 33 41.89               | + 1.64                   | 43.53                                | 9 16.05                                     | <i>m s</i><br>9 16.128 | + 0.018                           | - 0.020                                                                                                                                                                  | 9 16.126 |
|                                                                                                                                                                 | 3246             | + 23 29          | N                                                                   | <i>c - 0.4</i><br><i>d</i>                                      | 25 49.23                 | + 1.59                   | 50.82                                | N                                                                 | <i>c - 1.0</i><br><i>d</i>                                      | 35 5.42                  | + 1.56                   | 6.98                                 | 16.16                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3255             | + 28 53          | N                                                                   | <i>b + 6.0</i><br><i>a + 27.2</i>                               | 27 13.94                 | + 1.52                   | 18.46                                | N                                                                 | <i>b - 2.1</i><br><i>a - 19.9</i>                               | 36 30.06                 | + 1.60                   | 31.66                                | 16.20                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3227             | + 9 34           | S                                                                   | <i>s</i>                                                        | 22 57.79                 | + 1.73                   | 59.52                                | S                                                                 | <i>s</i>                                                        | 32 14.11                 | + 1.45                   | 15.56                                | 16.04                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3270             | + 13 10          | S                                                                   | <i>Q + 1.50</i>                                                 | 29 24.90                 | + 1.69                   | 26.59                                | S                                                                 | <i>Q + 1.60</i>                                                 | 38 41.30                 | + 1.47                   | 42.77                                | 16.18                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3278             | + 16 57          | S                                                                   |                                                                 | 31 21.63                 | + 1.65                   | 23.28                                | S                                                                 |                                                                 | 40 37.92                 | + 1.50                   | 39.42                                | 16.14                                       |                        |                                   |                                                                                                                                                                          |          |
| Feb. 12                                                                                                                                                         | 3331             | + 24 18          | N                                                                   | <i>I. P. W.</i>                                                 | 9 40 2.12                | - 1.42                   | 0.70                                 | N                                                                 | <i>I. P. E.</i>                                                 | 9 49 18.41               | - 1.63                   | 16.78                                | 9 16.08                                     | <i>m s</i><br>9 16.070 | + 0.018                           | - 0.020                                                                                                                                                                  | 9 16.068 |
|                                                                                                                                                                 | 3343             | + 21 8           | N                                                                   | <i>c - 0.4</i><br><i>d</i>                                      | 41 58.94                 | - 1.40                   | 57.54                                | N                                                                 | <i>c - 1.0</i><br><i>d</i>                                      | 51 15.32                 | - 1.66                   | 13.66                                | 16.12                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3371             | + 26 33          | N                                                                   | <i>b + 6.0</i><br><i>a + 27.2</i>                               | 46 56.11                 | - 1.45                   | 54.66                                | N                                                                 | <i>b - 2.1</i><br><i>a - 19.9</i>                               | 56 12.34                 | - 1.62                   | 10.72                                | 16.06                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3312             | + 10 25          | S                                                                   | <i>s</i>                                                        | 35 43.55                 | - 1.28                   | 42.27                                | S                                                                 | <i>s</i>                                                        | 44 60.09                 | - 1.75                   | 58.34                                | 16.07                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3321             | + 14 33          | S                                                                   | <i>Q - 1.50</i>                                                 | 38 10.92                 | - 1.32                   | 9.60                                 | S                                                                 | <i>Q - 1.60</i>                                                 | 47 27.36                 | - 1.72                   | 25.64                                | 16.04                                       |                        |                                   |                                                                                                                                                                          |          |
|                                                                                                                                                                 | 3359             | + 4 53           | S                                                                   |                                                                 | 45 13.89                 | - 1.23                   | 12.66                                | S                                                                 |                                                                 | 54 30.50                 | - 1.79                   | 28.71                                | 16.05                                       |                        |                                   |                                                                                                                                                                          |          |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| PROME (E). Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ ; AND AKYAB (W) Lat. $20^\circ 8'$ , Long. $6^h 11^m 45^s$ . |                  |             |                                                                     |                                                                 |                          |                          |                                     |                                                                   |                                                                 |                          |                          |                                     |                                             |                     |                                   |                                                                             |
|--------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------|
| Astronomical Date                                                                                                  | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                     | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                     | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0.021$<br>$S_N - S_S = -0.019$ |
|                                                                                                                    | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                             |
| 1884                                                                                                               |                  | ° ' "       |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            | <i>m s</i>                                  |                     |                                   |                                                                             |
| Feb.13                                                                                                             | 2632             | + 20 11     | N                                                                   | <i>I. P. W.</i>                                                 | 7 49 34.31               | +1.34                    | 35.65                               | N                                                                 | <i>I. P. W.</i>                                                 | 7 58 50.36               | +1.40                    | 51.76                               | 9 16.11                                     |                     |                                   |                                                                             |
|                                                                                                                    | 2672             | + 28 7      | N                                                                   | <i>d</i>                                                        | 57 4.28                  | +1.36                    | 5.64                                | N                                                                 | <i>d</i>                                                        | 8 6 20.24                | +1.46                    | 21.70                               | 16.06                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2688             | + 27 51     | N                                                                   | <i>c - 1.3</i><br><i>b - 5.8</i><br><i>a - 9.9</i>              | 59 11.18                 | +1.36                    | 12.54                               | N                                                                 | <i>c - 2.4</i><br><i>b - 5.4</i><br><i>a - 19.9</i>             | 8 27.07                  | +1.46                    | 28.53                               | 15.99                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2630             | + 16 6      | S                                                                   | <i>s</i>                                                        | 51 4.81                  | +1.32                    | 6.13                                | S                                                                 | <i>s</i>                                                        | 0 20.89                  | +1.37                    | 22.26                               | 16.13                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2640             | + 16 50     | S                                                                   | <i>Q + 1.50</i>                                                 | 52 35.00                 | +1.32                    | 36.32                               | S                                                                 | <i>Q + 1.59</i>                                                 | 1 50.99                  | +1.37                    | 52.36                               | 16.04                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2650             | + 17 37     | S                                                                   |                                                                 | 54 49.00                 | +1.33                    | 50.33                               | S                                                                 |                                                                 | 4 5.04                   | +1.38                    | 6.42                                | 16.09                                       |                     |                                   |                                                                             |
| Feb.13                                                                                                             | 2718             | + 27 49     | N                                                                   | <i>I. P. W.</i>                                                 | 8 2 27.52                | -1.64                    | 25.88                               | N                                                                 | <i>I. P. W.</i>                                                 | 8 11 43.66               | -1.72                    | 41.94                               | 9 16.06                                     |                     |                                   |                                                                             |
|                                                                                                                    | 2734             | + 32 49     | N                                                                   | <i>d</i>                                                        | 5 6.02                   | -1.63                    | 4.39                                | N                                                                 | <i>d</i>                                                        | 14 22.08                 | -1.67                    | 20.41                               | 16.02                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2748             | + 14 21     | S                                                                   | <i>c - 1.3</i><br><i>b - 5.8</i><br><i>a - 9.9</i>              | 6 36.32                  | -1.68                    | 34.64                               | S                                                                 | <i>c - 2.4</i><br><i>b - 5.4</i><br><i>a - 19.9</i>             | 15 52.51                 | -1.82                    | 50.69                               | 16.05                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2759             | + 18 1      | S                                                                   | <i>s</i>                                                        | 8 16.39                  | -1.67                    | 14.72                               | S                                                                 | <i>s</i>                                                        | 17 32.52                 | -1.80                    | 30.72                               | 16.00                                       |                     |                                   |                                                                             |
|                                                                                                                    | 2778             | + 9 32      | S                                                                   | <i>Q - 1.50</i>                                                 | 10 57.01                 | -1.70                    | 55.31                               | S                                                                 | <i>Q - 1.59</i>                                                 | 20 13.26                 | -1.84                    | 11.42                               | 16.11                                       |                     |                                   |                                                                             |
|                                                                                                                    |                  |             |                                                                     |                                                                 |                          |                          |                                     |                                                                   |                                                                 |                          |                          |                                     |                                             |                     |                                   |                                                                             |
| Feb.13                                                                                                             | 3238             | + 34 10     | N                                                                   | <i>I. P. E.</i>                                                 | 9 24 23.01               | +1.24                    | 24.25                               | N                                                                 | <i>I. P. W.</i>                                                 | 9 33 38.98               | +1.51                    | 40.49                               | 9 16.24                                     |                     |                                   |                                                                             |
|                                                                                                                    | 3246             | + 23 29     | N                                                                   | <i>d</i>                                                        | 25 46.49                 | +1.24                    | 47.73                               | N                                                                 | <i>d</i>                                                        | 35 2.52                  | +1.43                    | 3.95                                | 16.22                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3255             | + 28 53     | N                                                                   | <i>c + 0.3</i><br><i>b - 11.0</i><br><i>a - 2.3</i>             | 27 11.19                 | +1.24                    | 12.43                               | N                                                                 | <i>c - 2.4</i><br><i>b - 5.4</i><br><i>a - 19.9</i>             | 36 27.11                 | +1.47                    | 28.58                               | 16.15                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3227             | + 9 34      | S                                                                   | <i>s</i>                                                        | 22 55.04                 | +1.25                    | 56.29                               | S                                                                 | <i>s</i>                                                        | 32 11.16                 | +1.34                    | 12.50                               | 16.21                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3270             | + 13 10     | S                                                                   | <i>Q + 1.50</i>                                                 | 29 22.24                 | +1.25                    | 23.49                               | S                                                                 | <i>Q + 1.59</i>                                                 | 38 38.40                 | +1.35                    | 39.75                               | 16.26                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3278             | + 16 57     | S                                                                   |                                                                 | 31 18.94                 | +1.25                    | 20.19                               | S                                                                 |                                                                 | 40 34.98                 | +1.37                    | 36.35                               | 16.16                                       |                     |                                   |                                                                             |
| Feb.13                                                                                                             | 3331             | + 24 18     | N                                                                   | <i>I. P. E.</i>                                                 | 9 39 59.34               | -1.75                    | 57.59                               | N                                                                 | <i>I. P. W.</i>                                                 | 9 49 15.52               | -1.74                    | 13.78                               | 9 16.19                                     |                     |                                   |                                                                             |
|                                                                                                                    | 3343             | + 21 8      | N                                                                   | <i>d</i>                                                        | 41 56.22                 | -1.76                    | 54.46                               | N                                                                 | <i>d</i>                                                        | 51 12.40                 | -1.77                    | 10.63                               | 16.17                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3871             | + 26 33     | N                                                                   | <i>c + 0.3</i><br><i>b - 11.0</i><br><i>a - 2.3</i>             | 46 53.35                 | -1.75                    | 51.60                               | N                                                                 | <i>c - 2.4</i><br><i>b - 5.4</i><br><i>a - 19.9</i>             | 56 9.44                  | -1.73                    | 7.71                                | 16.11                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3312             | + 10 25     | S                                                                   | <i>s</i>                                                        | 35 40.90                 | -1.75                    | 39.15                               | S                                                                 | <i>s</i>                                                        | 44 57.21                 | -1.84                    | 55.37                               | 16.22                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3321             | + 14 33     | S                                                                   | <i>Q - 1.50</i>                                                 | 38 8.24                  | -1.75                    | 6.49                                | S                                                                 | <i>Q - 1.59</i>                                                 | 47 24.46                 | -1.83                    | 22.63                               | 16.14                                       |                     |                                   |                                                                             |
|                                                                                                                    | 3359             | + 4 53      | S                                                                   |                                                                 | 45 11.33                 | -1.74                    | 9.59                                | S                                                                 |                                                                 | 54 27.61                 | -1.88                    | 25.73                               | 16.14                                       |                     |                                   |                                                                             |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

| PROME (E) Lat. $15^\circ 49'$ , Long. $6^h 21^m 2^s$ ; AND AKYAB (W) Lat. $20^\circ 8'$ , Long. $6^h 11^m 45^s$ . |                  |             |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                             |
|-------------------------------------------------------------------------------------------------------------------|------------------|-------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------|
| Astronomical Date                                                                                                 | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$H_N - H_S = +0.021$<br>$S_N - S_S = -0.019$ |
|                                                                                                                   | B.A.C.<br>Number | Declination | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                             |
| 1884                                                                                                              |                  |             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                             |
| Feb. 8                                                                                                            | 2811             | + 26 35     | N                                                                   | <i>I. P. E.</i>                                                 | 8 13 31.21               | +1.57                    | 32.78                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 22 47.49               | +1.60                    | 49.09                                | 9 16.31                                     |                     |                                   |                                                                             |
|                                                                                                                   | 2871             | + 36 49     | N                                                                   | <i>d</i><br>$c + 0.2$<br>$b + 0.2$<br>$a + 8.7$                 | 17 56.46                 | +1.53                    | 57.99                                | N                                                                 | <i>d</i><br>$c - 0.4$<br>$b + 0.1$<br>$a - 16.3$                | 27 12.63                 | +1.68                    | 14.31                                | 16.32                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2012             | + 32 21     | N                                                                   | <i>s</i>                                                        | 23 46.44                 | +1.56                    | 48.00                                | N                                                                 | <i>s</i>                                                        | 33 2.62                  | +1.64                    | 4.26                                 | 16.26                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2853             | + 18 29     | S                                                                   | <i>s</i>                                                        | 15 38.44                 | +1.59                    | 40.03                                | S                                                                 | <i>s</i>                                                        | 24 54.79                 | +1.54                    | 56.33                                | 16.30                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2889             | + 7 2       | S                                                                   | <i>Q</i> +1.59                                                  | 20 20.47                 | +1.63                    | 22.10                                | S                                                                 | <i>Q</i> +1.56                                                  | 29 36.91                 | +1.47                    | 38.38                                | 16.28                                       |                     |                                   |                                                                             |
| Feb. 8                                                                                                            | 2937             | + 21 53     | N                                                                   | <i>I. P. E.</i>                                                 | 8 27 16.95               | -1.60                    | 15.35                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 36 33.30               | -1.56                    | 31.74                                | 9 16.39                                     |                     |                                   |                                                                             |
|                                                                                                                   | 2953             | + 18 35     | N                                                                   | <i>d</i><br>$c + 0.2$<br>$b + 0.2$<br>$a + 8.7$                 | 28 48.22                 | -1.59                    | 46.63                                | N                                                                 | <i>d</i><br>$c - 0.4$<br>$b + 0.1$<br>$a - 16.3$                | 38 4.52                  | -1.58                    | 2.94                                 | 16.31                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2965             | + 29 11     | N                                                                   | <i>s</i>                                                        | 30 23.29                 | -1.61                    | 21.68                                | N                                                                 | <i>s</i>                                                        | 39 39.60                 | -1.50                    | 38.10                                | 16.42                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3000             | + 28 42     | N                                                                   | <i>Q</i> -1.59                                                  | 36 12.70                 | -1.61                    | 11.09                                | N                                                                 | <i>Q</i> -1.56                                                  | 45 28.99                 | -1.51                    | 27.48                                | 16.39                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2953             | + 18 35     | S                                                                   | <i>s</i>                                                        | 28 48.15                 | -1.59                    | 46.56                                | S                                                                 | <i>s</i>                                                        | 38 4.54                  | -1.58                    | 2.96                                 | 16.40                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2978             | + 6 16      | S                                                                   | <i>s</i>                                                        | 32 59.77                 | -1.55                    | 58.22                                | S                                                                 | <i>s</i>                                                        | 42 16.30                 | -1.66                    | 14.64                                | 16.42                                       |                     |                                   |                                                                             |
|                                                                                                                   | 2990             | + 18 26     | S                                                                   | <i>s</i>                                                        | 34 48.65                 | -1.59                    | 47.06                                | S                                                                 | <i>s</i>                                                        | 44 5.02                  | -1.58                    | 3.44                                 | 16.38                                       |                     |                                   |                                                                             |
| Feb. 8                                                                                                            | 3430             | + 35 34     | N                                                                   | <i>I. P. W.</i>                                                 | 9 49 38.07               | +1.36                    | 39.43                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 58 54.17               | +1.67                    | 55.84                                | 9 16.41                                     |                     |                                   |                                                                             |
|                                                                                                                   | 3435             | + 21 45     | N                                                                   | <i>d</i><br>$c - 3.0$<br>$b - 2.1$<br>$a + 11.6$                | 58 45.70                 | +1.46                    | 47.16                                | N                                                                 | <i>d</i><br>$c - 0.4$<br>$b + 0.1$<br>$a - 16.3$                | 10 8 2.06                | +1.56                    | 3.62                                 | 16.46                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3500             | + 29 53     | N                                                                   | <i>s</i>                                                        | 10 018.07                | +1.40                    | 19.47                                | N                                                                 | <i>s</i>                                                        | 9 34.29                  | +1.62                    | 35.91                                | 16.44                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3453             | + 17 20     | S                                                                   | <i>s</i>                                                        | 9 51 39.52               | +1.48                    | 41.00                                | S                                                                 | <i>s</i>                                                        | 0 55.84                  | +1.53                    | 57.37                                | 16.37                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3463             | + 6 45      | S                                                                   | <i>Q</i> +1.59                                                  | 53 49.17                 | +1.52                    | 50.69                                | S                                                                 | <i>Q</i> +1.56                                                  | 3 5.68                   | +1.47                    | 7.15                                 | 16.46                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3476             | + 13 56     | S                                                                   | <i>s</i>                                                        | 56 2.93                  | +1.49                    | 4.42                                 | S                                                                 | <i>s</i>                                                        | 5 19.35                  | +1.51                    | 20.86                                | 16.44                                       |                     |                                   |                                                                             |
| Feb. 8                                                                                                            | 3522             | + 20 4      | N                                                                   | <i>I. P. W.</i>                                                 | 10 4 7.49                | -1.72                    | 5.77                                 | N                                                                 | <i>I. P. E.</i>                                                 | 10 13 23.81              | -1.57                    | 22.24                                | 9 16.47                                     |                     |                                   |                                                                             |
|                                                                                                                   | 3602             | + 32 58     | N                                                                   | <i>d</i><br>$c - 3.0$<br>$b - 2.1$<br>$a + 11.6$                | 15 58.39                 | -1.80                    | 56.59                                | N                                                                 | <i>d</i><br>$c - 0.4$<br>$b + 0.1$<br>$a - 16.3$                | 25 14.49                 | -1.47                    | 13.02                                | 16.43                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3610             | + 35 35     | N                                                                   | <i>s</i>                                                        | 17 35.14                 | -1.82                    | 33.32                                | N                                                                 | <i>s</i>                                                        | 26 51.15                 | -1.45                    | 49.70                                | 16.38                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3561             | + 9 22      | S                                                                   | <i>s</i>                                                        | 9 50.46                  | -1.67                    | 48.79                                | S                                                                 | <i>s</i>                                                        | 19 6.86                  | -1.64                    | 5.22                                 | 16.43                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3562             | + 9 22      | S                                                                   | <i>Q</i> -1.59                                                  | 10 10.63                 | -1.67                    | 8.96                                 | S                                                                 | <i>Q</i> -1.56                                                  | 19 27.04                 | -1.64                    | 25.40                                | 16.44                                       |                     |                                   |                                                                             |
|                                                                                                                   | 3621             | + 7 33      | S                                                                   | <i>s</i>                                                        | 19 26.93                 | -1.66                    | 25.27                                | S                                                                 | <i>s</i>                                                        | 28 43.37                 | -1.65                    | 41.72                                | 16.45                                       |                     |                                   |                                                                             |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*PROME (E) Lat.  $18^\circ 49'$ , Long.  $6^h 21^m 2^s$ : AND AKYAB (W) Lat.  $20^\circ 8'$ , Long.  $6^h 11^m 45^s$ .

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |                  |                                   |                                                                 |                          |                          |                                      |                                  |                                                                 |                          |                          |                                      |                            |                     |                                   |                                                                                                                        |                     |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-----------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|----------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|----------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------|--|
| Astronomical Date                                                                                                                                               | STAR             |                  | TRANSITS OBSERVED AT E            |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W           |                                                                 |                          |                          |                                      | Difference of              |                     | Correction for Rate of<br>W Clock | Corrns. for Peral. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0.021<br>S <sub>N</sub> - S <sub>S</sub> = - 0.019 | δL <sub>N</sub> + ρ |  |
|                                                                                                                                                                 |                  |                  | By Heavside, with Telescope No. 1 |                                                                 |                          |                          |                                      | By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Corrected Times<br>(W - E) |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                    | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star            | Mean<br>of<br>Group |                                   |                                                                                                                        |                     |  |
| 1884                                                                                                                                                            |                  | ° ' "            |                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                  |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                 |                     |                                   |                                                                                                                        |                     |  |
| Feb. 9                                                                                                                                                          | 2841             | + 26 35          | N                                 | <i>I. P. W.</i>                                                 | 8 13 24.78               | + 1.39                   | 26.17                                | N                                | <i>I. P. W.</i>                                                 | 8 22 40.69               | + 1.50                   | 42.19                                | 9 16.02                    |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2871             | + 36 49          | N                                 | <i>d</i>                                                        | 17 49.98                 | + 1.36                   | 51.34                                | N                                | <i>d</i>                                                        | 27 5.80                  | + 1.56                   | 7.36                                 | 16.02                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2899             | + 19 40          | N                                 | <i>c</i> - 2.9<br><i>b</i> - 1.3<br><i>a</i> + 3.0              | 21 40.87                 | + 1.40                   | 42.27                                | N                                | <i>c</i> - 2.9<br><i>b</i> - 3.3<br><i>a</i> - 16.1             | 30 56.92                 | + 1.45                   | 58.37                                | 16.10                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2912             | + 32 21          | N                                 | <i>s</i>                                                        | 23 39.88                 | + 1.37                   | 41.25                                | N                                | <i>s</i>                                                        | 32 55.88                 | + 1.52                   | 57.40                                | 16.15                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2858             | + 18 29          | S                                 | <i>Q</i> + 1.50                                                 | 15 31.98                 | + 1.40                   | 33.38                                | S                                | <i>Q</i> + 1.60                                                 | 24 48.00                 | + 1.44                   | 49.44                                | 16.06                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2880             | + 7 2            | S                                 |                                                                 | 20 13.92                 | + 1.41                   | 15.33                                | S                                |                                                                 | 29 30.06                 | + 1.38                   | 31.44                                | 16.11                      |                     |                                   |                                                                                                                        |                     |  |
| Feb. 9                                                                                                                                                          | 2937             | + 21 53          | N                                 | <i>I. P. W.</i>                                                 | 8 27 10.42               | - 1.60                   | 8.82                                 | N                                | <i>I. P. W.</i>                                                 | 8 36 26.55               | - 1.74                   | 24.81                                | 9 15.99                    |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2953             | + 18 35          | N                                 | <i>d</i>                                                        | 18 41.64                 | - 1.60                   | 40.04                                | N                                | <i>d</i>                                                        | 37 57.79                 | - 1.76                   | 56.03                                | 15.99                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2965             | + 29 11          | N                                 | <i>c</i> - 2.9<br><i>b</i> - 1.3<br><i>a</i> + 3.0              | 30 16.78                 | - 1.61                   | 15.17                                | N                                | <i>c</i> - 2.9<br><i>b</i> - 3.3<br><i>a</i> - 16.1             | 39 32.87                 | - 1.68                   | 31.19                                | 16.02                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3000             | + 28 42          | N                                 | <i>s</i>                                                        | 36 6.19                  | - 1.61                   | 4.58                                 | N                                | <i>s</i>                                                        | 45 22.30                 | - 1.69                   | 20.61                                | 16.03                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2953             | + 18 35          | S                                 | <i>Q</i> - 1.50                                                 | 28 41.57                 | - 1.60                   | 39.97                                | S                                | <i>Q</i> - 1.60                                                 | 37 57.77                 | - 1.76                   | 56.01                                | 16.04                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2978             | + 6 16           | S                                 |                                                                 | 32 53.24                 | - 1.59                   | 51.65                                | S                                |                                                                 | 42 9.59                  | - 1.83                   | 7.76                                 | 16.11                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 2990             | + 18 26          | S                                 |                                                                 | 34 42.17                 | - 1.60                   | 40.57                                | S                                |                                                                 | 43 58.31                 | - 1.76                   | 56.55                                | 15.98                      |                     |                                   |                                                                                                                        |                     |  |
| Feb. 9                                                                                                                                                          | 3439             | + 35 34          | N                                 | <i>I. P. E.</i>                                                 | 9 49 31.68               | + 1.15                   | 32.83                                | N                                | <i>I. P. W.</i>                                                 | 9 58 47.44               | + 1.55                   | 48.99                                | 9 16.16                    |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3485             | + 21 45          | N                                 | <i>d</i>                                                        | 58 39.11                 | + 1.31                   | 40.42                                | N                                | <i>d</i>                                                        | 10 7 55.22               | + 1.46                   | 56.68                                | 16.26                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3500             | + 29 53          | N                                 | <i>c</i> - 1.4<br><i>b</i> - 5.4<br><i>a</i> + 21.2             | 10 0 11.47               | + 1.22                   | 12.69                                | N                                | <i>c</i> - 2.9<br><i>b</i> - 3.3<br><i>a</i> - 16.1             | 9 27.53                  | + 1.51                   | 29.04                                | 16.35                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3453             | + 17 20          | S                                 | <i>s</i>                                                        | 9 51 32.91               | + 1.35                   | 34.26                                | S                                | <i>s</i>                                                        | 0 49.06                  | + 1.43                   | 50.49                                | 16.23                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3463             | + 6 45           | S                                 | <i>Q</i> + 1.50                                                 | 53 42.48                 | + 1.45                   | 43.93                                | S                                | <i>Q</i> + 1.60                                                 | 2 58.85                  | + 1.38                   | 60.23                                | 16.30                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 8476             | + 13 56          | S                                 | .                                                               | 55 56.29                 | + 1.39                   | 57.68                                | S                                |                                                                 | 5 12.45                  | + 1.41                   | 13.86                                | 16.18                      |                     |                                   |                                                                                                                        |                     |  |
| Feb. 9                                                                                                                                                          | 3523             | + 20 4           | N                                 | <i>I. P. E.</i>                                                 | 10 3 60.76               | - 1.67                   | 59.09                                | N                                | <i>I. P. W.</i>                                                 | 10 13 17.03              | - 1.75                   | 15.28                                | 9 16.19                    |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3602             | + 32 58          | N                                 | <i>d</i>                                                        | 15 51.74                 | - 1.82                   | 49.92                                | N                                | <i>d</i>                                                        | 25 7.75                  | - 1.67                   | 6.08                                 | 16.16                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3610             | + 35 35          | N                                 | <i>c</i> - 1.4<br><i>b</i> - 5.4<br><i>a</i> + 21.2             | 17 28.48                 | - 1.85                   | 26.63                                | N                                | <i>c</i> - 2.9<br><i>b</i> - 3.3<br><i>a</i> - 16.1             | 26 44.46                 | - 1.65                   | 42.81                                | 16.18                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3561             | + 9 22           | S                                 | <i>s</i>                                                        | 9 43.66                  | - 1.57                   | 42.09                                | S                                | <i>s</i>                                                        | 18 60.07                 | - 1.81                   | 58.26                                | 16.17                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3562             | + 9 22           | S                                 | <i>Q</i> - 1.50                                                 | 10 3.84                  | - 1.57                   | 2.27                                 | S                                | <i>Q</i> - 1.60                                                 | 19 20.26                 | - 1.81                   | 18.45                                | 16.18                      |                     |                                   |                                                                                                                        |                     |  |
|                                                                                                                                                                 | 3621             | + 7 33           | S                                 |                                                                 | 19 20.09                 | - 1.55                   | 18.54                                | S                                |                                                                 | 28 36.61                 | - 1.82                   | 34.79                                | 16.25                      |                     |                                   |                                                                                                                        |                     |  |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + p$ .\*

| PROME (E) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 46 <sup>s</sup> . |                  |                  |                                                                     |                                                                 |                          |                          |                                      |                                                                   |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                    |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                               | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Peral. Equations<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>s</sup> .021<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>s</sup> .019 | δ L <sub>N</sub> + ρ |
|                                                                                                                                                                 | B A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                      |
| 1884                                                                                                                                                            |                  | ° ' "            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                      |
| Feb.12                                                                                                                                                          | 2841             | + 26 35          | N                                                                   | <i>I. P. E.</i>                                                 | 8 13 3'37                | + 1'59                   | 4'96                                 | N                                                                 | <i>I. P. E.</i>                                                 | 8 22 19'81               | + 1'58                   | 21'39                                | 9 16'43                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2871             | + 36 49          | N                                                                   | <i>d</i>                                                        | 17 28'69                 | + 1'52                   | 30'21                                | N                                                                 | <i>d</i>                                                        | 26 44'89                 | + 1'67                   | 46'56                                | 16'35                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2800             | + 19 40          | N                                                                   | <i>c</i> + 0'5<br><i>b</i> + 5'4<br><i>a</i> + 15'3             | 21 19'49                 | + 1'63                   | 21'12                                | N                                                                 | <i>c</i> - 1'0<br><i>b</i> - 2'1<br><i>a</i> - 19'9             | 30 36'01                 | + 1'53                   | 37'54                                | 16'42                                       | <i>m s</i>          | 9 16'383                          | + 0'051                                                                                                                                            | 0'013                |
|                                                                                                                                                                 | 2012             | + 32 21          | N                                                                   | <i>s</i>                                                        | 23 18'58                 | + 1'56                   | 20'14                                | N                                                                 | <i>s</i>                                                        | 32 34'94                 | + 1'63                   | 36'57                                | 16'43                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2853             | + 18 29          | S                                                                   | <i>Q</i> + 1'50                                                 | 15 10'64                 | + 1'64                   | 12'28                                | S                                                                 | <i>Q</i> + 1'60                                                 | 24 27'03                 | + 1'52                   | 28'55                                | 16'27                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2880             | + 7 2            | S                                                                   |                                                                 | 19 52'49                 | + 1'70                   | 54'19                                | S                                                                 |                                                                 | 29 9'16                  | + 1'43                   | 10'59                                | 16'40                                       |                     |                                   |                                                                                                                                                    | 9 16'421             |
| Feb.12                                                                                                                                                          | 2937             | + 21 53          | N                                                                   | <i>I. P. E.</i>                                                 | 8 26 49'07               | - 1'38                   | 47'69                                | N                                                                 | <i>I. P. E.</i>                                                 | 8 36 5'60                | - 1'65                   | 3'95                                 | 9 16'26                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2053             | + 18 35          | N                                                                   | <i>d</i>                                                        | 28 20'22                 | - 1'36                   | 18'86                                | N                                                                 | <i>d</i>                                                        | 37 36'84                 | - 1'68                   | 35'16                                | 16'30                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2065             | + 29 11          | N                                                                   | <i>c</i> + 0'5<br><i>b</i> + 5'4<br><i>a</i> + 15'3             | 29 55'37                 | - 1'42                   | 53'95                                | N                                                                 | <i>c</i> - 1'0<br><i>b</i> - 2'1<br><i>a</i> - 19'9             | 39 11'90                 | - 1'60                   | 10'30                                | 16'35                                       | <i>m s</i>          | 9 16'314                          | + 0'051                                                                                                                                            | 0'017                |
|                                                                                                                                                                 | 3000             | + 28 42          | N                                                                   | <i>s</i>                                                        | 35 44'85                 | - 1'42                   | 43'43                                | N                                                                 | <i>s</i>                                                        | 44 61'33                 | - 1'60                   | 59'73                                | 16'30                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2953             | + 18 35          | S                                                                   | <i>Q</i> - 1'50                                                 | 28 20'14                 | - 1'36                   | 18'78                                | S                                                                 | <i>Q</i> - 1'60                                                 | 37 36'81                 | - 1'68                   | 35'13                                | 16'35                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2078             | + 6 16           | S                                                                   |                                                                 | 32 31'84                 | - 1'30                   | 30'54                                | S                                                                 |                                                                 | 41 48'64                 | - 1'78                   | 46'86                                | 16'32                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 2990             | + 18 26          | S                                                                   |                                                                 | 34 20'71                 | - 1'36                   | 19'35                                | S                                                                 |                                                                 | 43 37'35                 | - 1'68                   | 35'67                                | 16'32                                       |                     |                                   |                                                                                                                                                    | 9 16'348             |
| Feb.12                                                                                                                                                          | 3439             | + 35 34          | N                                                                   | <i>I. P. W.</i>                                                 | 9 49 10'36               | + 1'43                   | 11'79                                | N                                                                 | <i>I. P. E.</i>                                                 | 9 58 26'41               | + 1'66                   | 28'07                                | 9 16'28                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3485             | + 21 45          | N                                                                   | <i>d</i>                                                        | 58 17'91                 | + 1'60                   | 19'51                                | N                                                                 | <i>d</i>                                                        | 10 7 34'19               | + 1'54                   | 35'73                                | 16'22                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3500             | + 29 53          | N                                                                   | <i>c</i> - 0'4<br><i>b</i> + 6'0<br><i>a</i> + 27'2             | 59 50'31                 | + 1'51                   | 51'82                                | N                                                                 | <i>c</i> - 1'0<br><i>b</i> - 2'1<br><i>a</i> - 19'9             | 9 6'43                   | + 1'61                   | 8'04                                 | 16'22                                       | <i>m s</i>          | 9 16'247                          | + 0'051                                                                                                                                            | 0'020                |
|                                                                                                                                                                 | 3453             | + 17 20          | S                                                                   | <i>s</i>                                                        | 51 11'68                 | + 1'65                   | 13'33                                | S                                                                 | <i>s</i>                                                        | 0 28'06                  | + 1'51                   | 29'57                                | 16'24                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3463             | + 6 45           | S                                                                   | <i>Q</i> + 1'50                                                 | 53 21'16                 | + 1'75                   | 22'91                                | S                                                                 | <i>Q</i> + 1'60                                                 | 2 37'84                  | + 1'43                   | 39'27                                | 16'36                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3475             | + 13 56          | S                                                                   |                                                                 | 55 35'05                 | + 1'70                   | 36'75                                | S                                                                 |                                                                 | 4 51'43                  | + 1'48                   | 52'91                                | 16'16                                       |                     |                                   |                                                                                                                                                    | 9 16'278             |
| Feb.12                                                                                                                                                          | 3522             | + 20 4           | N                                                                   | <i>I. P. W.</i>                                                 | 10 3 39'45               | - 1'38                   | 38'07                                | N                                                                 | <i>I. P. E.</i>                                                 | 10 12 55'97              | - 1'67                   | 54'30                                | 9 16'23                                     |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3602             | + 32 58          | N                                                                   | <i>d</i>                                                        | 15 30'44                 | - 1'53                   | 28'91                                | N                                                                 | <i>d</i>                                                        | 24 46'68                 | - 1'56                   | 45'12                                | 16'21                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3610             | + 35 35          | N                                                                   | <i>c</i> - 0'4<br><i>b</i> + 6'0<br><i>a</i> + 27'2             | 17 7'17                  | - 1'57                   | 5'60                                 | N                                                                 | <i>c</i> - 1'0<br><i>b</i> - 2'1<br><i>a</i> - 19'9             | 26 23'36                 | - 1'54                   | 21'82                                | 16'22                                       | <i>m s</i>          | 9 16'185                          | + 0'051                                                                                                                                            | 0'020                |
|                                                                                                                                                                 | 3561             | + 9 22           | S                                                                   | <i>s</i>                                                        | 9 22'48                  | - 1'27                   | 21'21                                | S                                                                 | <i>s</i>                                                        | 18 39'06                 | - 1'76                   | 37'30                                | 16'09                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3562             | + 9 22           | S                                                                   | <i>Q</i> - 1'50                                                 | 9 42'58                  | - 1'27                   | 41'31                                | S                                                                 | <i>Q</i> - 1'60                                                 | 18 59'30                 | - 1'76                   | 57'54                                | 16'23                                       |                     |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                 | 3621             | + 7 33           | S                                                                   |                                                                 | 18 58'94                 | - 1'26                   | 57'68                                | S                                                                 |                                                                 | 28 15'58                 | - 1'77                   | 13'81                                | 16'13                                       |                     |                                   |                                                                                                                                                    | 9 16'216             |

NOTE.—1<sup>d</sup> = 0<sup>s</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $p$  is the retardation of an electric signal between the stations.† Includes (N - S) Equation + 0<sup>s</sup>.02.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + p$ .

| PROME (E) Lat. $18^{\circ} 49'$ , Long. $6^{\circ} 21' 2''$ ; AND AKYAB (W) Lat. $20^{\circ} 8'$ , Long. $6^{\circ} 11' 45''$ . |                  |                  |                                                              |                                                                 |                          |                          |                                      |                                                            |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                               | STAR             |                  | TRANSITS OBSERVED AT E<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>W Clock | Corrs. for Peral. Equations<br>$H_N - H_S = + 0^{\circ}.021$<br>$S_N - S_S = - 0^{\circ}.019$ |
|                                                                                                                                 | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                               |
| 1884                                                                                                                            |                  | ° ' "            |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                               |
| Feb. 13                                                                                                                         | 2841             | + 26 35          | N                                                            | <i>I. P. W.</i>                                                 | 8 12 55.44               | + 1.36                   | 56.80                                | N                                                          | <i>I. P. W.</i>                                                 | 8 22 11.47               | + 1.45                   | 12.92                                | 9 16.12                                     |                        |                                   |                                                                                               |
|                                                                                                                                 | 2871             | + 36 49          | N                                                            | <i>c - d</i><br>1.3                                             | 17 20.58                 | + 1.39                   | 21.97                                | N                                                          | <i>c - d</i><br>2.4                                             | 26 36.53                 | + 1.53                   | 38.06                                | 16.09                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2899             | + 19 40          | N                                                            | <i>b - a</i><br>5.8<br>9.9                                      | 21 11.54                 | + 1.33                   | 12.87                                | N                                                          | <i>b - a</i><br>5.4<br>19.9                                     | 30 27.65                 | + 1.40                   | 29.05                                | 16.18                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2912             | + 32 21          | N                                                            | <i>s</i><br><i>Q + 1.50</i>                                     | 23 10.51                 | + 1.38                   | 11.89                                | N                                                          | <i>s</i><br><i>Q + 1.59</i>                                     | 32 26.54                 | + 1.50                   | 28.04                                | 16.15                                       | <i>m s</i><br>9 16.117 | + 0.053                           |                                                                                               |
|                                                                                                                                 | 2853             | + 18 29          | S                                                            |                                                                 | 15 2.77                  | + 1.33                   | 4.10                                 | S                                                          |                                                                 | 24 18.74                 | + 1.39                   | 20.13                                | 16.03                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2889             | + 7 2            | S                                                            |                                                                 | 19 44.72                 | + 1.29                   | 46.01                                | S                                                          |                                                                 | 29 0.82                  | + 1.32                   | 2.14                                 | 16.13                                       |                        |                                   |                                                                                               |
| Feb. 13                                                                                                                         | 2937             | + 21 53          | N                                                            | <i>I. P. W.</i>                                                 | 8 26 41.17               | - 1.66                   | 39.51                                | N                                                          | <i>I. P. W.</i>                                                 | 8 35 57.29               | - 1.76                   | 55.53                                | 9 16.02                                     |                        |                                   |                                                                                               |
|                                                                                                                                 | 2953             | + 18 35          | N                                                            | <i>c - d</i><br>1.3                                             | 28 12.39                 | - 1.67                   | 10.72                                | N                                                          | <i>c - d</i><br>2.4                                             | 37 28.54                 | - 1.79                   | 26.75                                | 16.03                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2965             | + 29 11          | N                                                            | <i>b - a</i><br>5.8<br>9.9                                      | 29 47.44                 | - 1.63                   | 45.81                                | N                                                          | <i>b - a</i><br>5.4<br>19.9                                     | 39 3.53                  | - 1.71                   | 1.82                                 | 16.01                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3000             | + 28 42          | N                                                            | <i>s</i><br><i>Q - 1.50</i>                                     | 35 36.92                 | - 1.64                   | 35.28                                | N                                                          | <i>s</i><br><i>Q - 1.59</i>                                     | 44 52.99                 | - 1.71                   | 51.28                                | 16.00                                       | <i>m s</i><br>9 16.013 | + 0.053                           |                                                                                               |
|                                                                                                                                 | 2953             | + 18 35          | S                                                            |                                                                 | 28 12.29                 | - 1.67                   | 10.62                                | S                                                          |                                                                 | 37 28.42                 | - 1.79                   | 26.63                                | 16.01                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2978             | + 6 16           | S                                                            |                                                                 | 32 24.14                 | - 1.71                   | 22.43                                | S                                                          |                                                                 | 41 40.27                 | - 1.87                   | 38.40                                | 15.97                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 2990             | + 18 26          | S                                                            |                                                                 | 34 12.83                 | - 1.67                   | 11.16                                | S                                                          |                                                                 | 43 29.00                 | - 1.79                   | 27.21                                | 16.05                                       |                        |                                   |                                                                                               |
| Feb. 13                                                                                                                         | 3189             | + 35 34          | N                                                            | <i>I. P. E.</i>                                                 | 9 49 2.14                | + 1.24                   | 3.38                                 | N                                                          | <i>I. P. W.</i>                                                 | 9 58 18.15               | + 1.53                   | 19.68                                | 9 16.30                                     |                        |                                   |                                                                                               |
|                                                                                                                                 | 3185             | + 21 45          | N                                                            | <i>c - d</i><br>0.3                                             | 58 9.90                  | + 1.24                   | 11.14                                | N                                                          | <i>c - d</i><br>2.4                                             | 10 7 25.91               | + 1.41                   | 27.32                                | 16.18                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3500             | + 29 53          | N                                                            | <i>b - a</i><br>11.0<br>2.3                                     | 59 42.29                 | + 1.24                   | 43.53                                | N                                                          | <i>b - a</i><br>5.4<br>19.9                                     | 8 58.15                  | + 1.48                   | 59.63                                | 16.10                                       | <i>m s</i><br>9 16.200 | + 0.053                           |                                                                                               |
|                                                                                                                                 | 3453             | + 17 20          | S                                                            | <i>s</i><br><i>Q + 1.50</i>                                     | 51 3.69                  | + 1.25                   | 4.94                                 | S                                                          | <i>s</i><br><i>Q + 1.59</i>                                     | 0 19.78                  | + 1.38                   | 21.16                                | 16.22                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3463             | + 6 45           | S                                                            |                                                                 | 53 13.44                 | + 1.26                   | 14.70                                | S                                                          |                                                                 | 2 29.59                  | + 1.32                   | 30.91                                | 16.21                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3475             | + 13 56          | S                                                            |                                                                 | 55 27.14                 | + 1.28†                  | 28.42                                | S                                                          |                                                                 | 4 43.25                  | + 1.36                   | 44.61                                | 16.19                                       |                        |                                   |                                                                                               |
| Feb. 13                                                                                                                         | 3522             | + 20 4           | N                                                            | <i>I. P. E.</i>                                                 | 10 3 31.48               | - 1.75                   | 29.73                                | N                                                          | <i>I. P. W.</i>                                                 | 10 12 47.70              | - 1.78                   | 45.92                                | 9 16.19                                     |                        |                                   |                                                                                               |
|                                                                                                                                 | 3602             | + 32 58          | N                                                            | <i>c - d</i><br>0.3                                             | 15 22.27                 | - 1.77                   | 20.50                                | N                                                          | <i>c - d</i><br>2.4                                             | 24 38.41                 | - 1.67                   | 36.74                                | 16.24                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3610             | + 35 35          | N                                                            | <i>b - a</i><br>11.0<br>2.3                                     | 16 58.96                 | - 1.76                   | 57.20                                | N                                                          | <i>b - a</i><br>5.4<br>19.9                                     | 26 15.07                 | - 1.65                   | 13.42                                | 16.22                                       | <i>m s</i><br>9 16.175 | + 0.053                           |                                                                                               |
|                                                                                                                                 | 3581             | + 9 22           | S                                                            | <i>s</i><br><i>Q - 1.50</i>                                     | 9 14.60                  | - 1.75                   | 12.85                                | S                                                          | <i>s</i><br><i>Q - 1.59</i>                                     | 18 30.80                 | - 1.85                   | 28.95                                | 16.10                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3562             | + 9 22           | S                                                            |                                                                 | 9 34.74                  | - 1.75                   | 32.99                                | S                                                          |                                                                 | 18 51.00                 | - 1.85                   | 49.15                                | 16.16                                       |                        |                                   |                                                                                               |
|                                                                                                                                 | 3621             | + 7 33           | S                                                            |                                                                 | 18 51.05                 | - 1.75                   | 49.30                                | S                                                          |                                                                 | 28 7.31                  | - 1.87                   | 5.44                                 | 16.14                                       |                        |                                   |                                                                                               |

NOTE.—1<sup>d</sup> = 0<sup>h</sup>.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $p$  is the retardation of an electric signal between the stations.† Includes (N - S) Equation + 0<sup>h</sup>.02.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 30^m 41^s$ ; AND PROME (W) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 3^s$ . |                  |             |                                                            |                                                                 |                          |                          |                                      |                                                              |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                |
|---------------------------------------------------------------------------------------------------------------------------|------------------|-------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|--------------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR             |             | TRANSITS OBSERVED AT E<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus. for Peral. Equations<br>$S_N - S_E = + 0.025$<br>$H_N - H_E = + 0.022$ |
|                                                                                                                           | B.A.C.<br>Number | Declination | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                |
| 1884                                                                                                                      |                  |             |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                |
| Mar. 8                                                                                                                    | 3522             | + 20 4      | N                                                          | <i>I. P. E.</i>                                                 | 10 13 17.58              | +1.60                    | 19.18                                | N                                                            | <i>I. P. W.</i>                                                 | 10 22 56.05              | +1.62                    | 57.67                                | 9 38.49                                     |                     |                                   |                                                                                |
|                                                                                                                           | 8002             | + 32 59     | N                                                          | <i>d</i><br>$0 - 0.8$                                           | 25 8.38                  | +1.63                    | 10.01                                | N                                                            | <i>d</i><br>$0 - 0.7$                                           | 34 47.01                 | +1.52                    | 48.53                                | 38.52                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8610             | + 35 35     | N                                                          | $b + 1.2$<br>$a - 5.6$                                          | 26 45.05                 | +1.64                    | 46.69                                | N                                                            | $b - 0.9$<br>$a + 16.8$                                         | 36 23.70                 | +1.50                    | 25.20                                | 38.51                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8501             | + 9 22      | S                                                          | <i>s</i><br>$Q + 1.58$                                          | 19 0.60                  | +1.57                    | 2.17                                 | S                                                            | <i>s</i><br>$Q + 1.67$                                          | 28 39.03                 | +1.69                    | 40.72                                | 38.55                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8502             | + 9 22      | S                                                          |                                                                 | 19 20.82                 | +1.57                    | 22.39                                | S                                                            |                                                                 | 28 59.13                 | +1.69                    | 60.82                                | 38.43                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8621             | + 7 33      | S                                                          |                                                                 | 28 37.13                 | +1.57                    | 38.70                                | S                                                            |                                                                 | 38 15.56                 | +1.71                    | 17.27                                | 38.57                                       |                     |                                   |                                                                                |
| Mar. 8                                                                                                                    | 8661             | + 32 19     | N                                                          | <i>I. P. E.</i>                                                 | 10 35 36.50              | -1.53                    | 34.97                                | N                                                            | <i>I. P. W.</i>                                                 | 10 45 15.34              | -1.81                    | 13.53                                | 9 38.56                                     |                     |                                   |                                                                                |
|                                                                                                                           | 8671             | + 23 48     | N                                                          | <i>d</i><br>$0 - 0.8$                                           | 37 1.68                  | -1.55                    | 0.13                                 | N                                                            | <i>d</i><br>$0 - 0.7$                                           | 46 40.46                 | -1.75                    | 38.71                                | 38.58                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8643             | + 16 44     | S                                                          | $b + 1.2$<br>$a - 5.6$                                          | 32 36.45                 | -1.57                    | 34.88                                | S                                                            | $b - 0.9$<br>$a + 16.8$                                         | 42 15.03                 | -1.69                    | 13.34                                | 38.46                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8684             | + 3 6       | S                                                          | <i>s</i><br>$Q - 1.58$                                          | 39 6.08                  | -1.60                    | 4.48                                 | S                                                            | <i>s</i><br>$Q - 1.67$                                          | 48 44.67                 | -1.61                    | 43.06                                | 38.58                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8693             | + 14 48     | S                                                          |                                                                 | 40 11.79                 | -1.57                    | 10.22                                | S                                                            |                                                                 | 49 50.53                 | -1.68                    | 48.85                                | 38.63                                       |                     |                                   |                                                                                |
| Mar. 9                                                                                                                    | 8522             | + 20 4      | N                                                          | <i>I. P. W.</i>                                                 | 10 13 6.85               | +1.45                    | 8.30                                 | N                                                            | <i>I. P. W.</i>                                                 | 10 22 45.56              | +1.54                    | 47.10                                | 9 38.80                                     |                     |                                   |                                                                                |
|                                                                                                                           | 8602             | + 32 59     | N                                                          | <i>d</i><br>$0 - 2.8$                                           | 24 57.48                 | +1.66                    | 59.14                                | N                                                            | <i>d</i><br>$0 - 2.5$                                           | 34 36.48                 | +1.41                    | 37.89                                | 38.75                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8610             | + 35 35     | N                                                          | $b - 3.6$<br>$a - 36.0$                                         | 26 34.12                 | +1.72                    | 35.84                                | N                                                            | $b - 3.1$<br>$a + 18.4$                                         | 36 13.19                 | +1.38                    | 14.57                                | 38.73                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8501             | + 9 22      | S                                                          | <i>s</i><br>$Q + 1.56$                                          | 18 50.08                 | +1.32                    | 51.40                                | S                                                            | <i>s</i><br>$Q + 1.68$                                          | 28 28.44                 | +1.62                    | 30.06                                | 38.66                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8502             | + 9 22      | S                                                          |                                                                 | 19 10.27                 | +1.32                    | 11.59                                | S                                                            |                                                                 | 28 48.56                 | +1.62                    | 50.18                                | 38.59                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8621             | + 7 33      | S                                                          |                                                                 | 28 26.59                 | +1.29                    | 27.88                                | S                                                            |                                                                 | 38 4.87                  | +1.63                    | 6.50                                 | 38.62                                       |                     |                                   |                                                                                |
| Mar. 9                                                                                                                    | 8661             | + 32 19     | N                                                          | <i>I. P. W.</i>                                                 | 10 35 25.59              | -1.46                    | 24.13                                | N                                                            | <i>I. P. W.</i>                                                 | 10 45 4.79               | -1.94                    | 2.85                                 | 9 38.72                                     |                     |                                   |                                                                                |
|                                                                                                                           | 8671             | + 23 48     | N                                                          | <i>d</i><br>$0 - 2.8$                                           | 36 50.92                 | -1.61                    | 49.31                                | N                                                            | <i>d</i><br>$0 - 2.5$                                           | 46 29.82                 | -1.86                    | 27.96                                | 38.65                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8643             | + 16 44     | S                                                          | $b - 3.6$<br>$a - 36.0$                                         | 32 25.81                 | -1.71                    | 24.10                                | S                                                            | $b - 3.1$<br>$a + 18.4$                                         | 42 4.55                  | -1.79                    | 2.76                                 | 38.66                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8684             | + 3 6       | S                                                          | <i>s</i><br>$Q - 1.56$                                          | 38 55.57                 | -1.89                    | 53.68                                | S                                                            | <i>s</i><br>$Q - 1.68$                                          | 48 34.10                 | -1.70                    | 32.40                                | 38.72                                       |                     |                                   |                                                                                |
|                                                                                                                           | 8693             | + 14 48     | S                                                          |                                                                 | 39 61.19                 | -1.74                    | 59.45                                | S                                                            |                                                                 | 49 39.94                 | -1.78                    | 38.16                                | 38.71                                       |                     |                                   |                                                                                |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 30^m 41^s$ : AND PROME (W) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 2^s$ . |      |         |                                                            |                                                                 |                          |                          |                                      |                                                              |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |
|---------------------------------------------------------------------------------------------------------------------------|------|---------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR |         | TRANSITS OBSERVED AT E<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br>By Heaviside, with Telescope No. 1 |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus. for Persl. Equations<br>$S_N - S_E = +0.025$<br>$H_N - H_E = +0.022$ |
|                                                                                                                           |      |         | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |
| 1884                                                                                                                      |      | ° ' "   |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                              |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |
| Mar.10                                                                                                                    | 8522 | + 20 4  | N                                                          | <i>I. P. W.</i>                                                 | 10 12 55.73              | +1.49                    | 57.22                                | N                                                            | <i>I. P. E.</i>                                                 | 10 22 34.16              | +1.56                    | 35.72                                | 9 38.50                                     |                     |                                   |                                                                              |
|                                                                                                                           | 8602 | + 32 59 | N                                                          | <i>d</i>                                                        | 24 46.35                 | +1.71                    | 48.06                                | N                                                            | <i>d</i>                                                        | 34 25.20                 | +1.40                    | 26.60                                | 38.54                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8610 | + 35 35 | N                                                          | <i>o - 2.7</i><br><i>b - 2.4</i><br><i>a - 38.6</i>             | 26 22.99                 | +1.77                    | 24.76                                | N                                                            | <i>o - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 36 1.95                  | +1.36                    | 3.31                                 | 38.55                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8561 | + 9 22  | S                                                          | <i>s</i>                                                        | 18 38.98                 | +1.33                    | 40.31                                | S                                                            | <i>s</i>                                                        | 28 17.06                 | +1.66                    | 18.72                                | 38.41                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8562 | + 9 22  | S                                                          | <i>Q + 1.55</i>                                                 | 18 59.13                 | +1.33                    | 60.46                                | S                                                            | <i>Q + 1.66</i>                                                 | 28 37.27                 | +1.66                    | 38.93                                | 38.47                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8621 | + 7 33  | S                                                          |                                                                 | 28 15.42                 | +1.30                    | 16.72                                | S                                                            |                                                                 | 37 53.62                 | +1.68                    | 55.30                                | 38.58                                       |                     |                                   |                                                                              |
| Mar.10                                                                                                                    | 8661 | + 32 19 | N                                                          | <i>I. P. W.</i>                                                 | 10 35 14.43              | -1.40                    | 13.03                                | N                                                            | <i>I. P. E.</i>                                                 | 10 44 53.52              | -1.92                    | 51.60                                | 9 38.57                                     |                     |                                   |                                                                              |
|                                                                                                                           | 8671 | + 23 48 | N                                                          | <i>d</i>                                                        | 36 39.76                 | -1.56                    | 38.20                                | N                                                            | <i>d</i>                                                        | 46 18.55                 | -1.80                    | 16.75                                | 38.55                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8643 | + 16 44 | S                                                          | <i>o - 2.7</i><br><i>b - 2.4</i><br><i>a - 38.6</i>             | 32 14.62                 | -1.67                    | 12.95                                | S                                                            | <i>o - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 41 53.18                 | -1.73                    | 51.45                                | 38.50                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8684 | + 3 6   | S                                                          | <i>s</i>                                                        | 38 44.48                 | -1.86                    | 42.62                                | S                                                            | <i>s</i>                                                        | 48 22.63                 | -1.61                    | 21.02                                | 38.40                                       |                     |                                   |                                                                              |
|                                                                                                                           | 8603 | + 14 48 | S                                                          | <i>Q - 1.55</i>                                                 | 39 50.04                 | -1.70                    | 48.34                                | S                                                            | <i>Q - 1.66</i>                                                 | 49 28.55                 | -1.71                    | 26.84                                | 38.50                                       |                     |                                   |                                                                              |
| Mar.10                                                                                                                    | 4031 | + 16 17 | N                                                          | <i>I. P. E.</i>                                                 | 11 49 12.19              | +1.62                    | 13.81                                | N                                                            | <i>I. P. E.</i>                                                 | 11 58 50.72              | +1.60                    | 52.32                                | 9 38.51                                     |                     |                                   |                                                                              |
|                                                                                                                           | 4057 | + 43 42 | N                                                          | <i>d</i>                                                        | 55 42.34                 | +2.25                    | 44.59                                | N                                                            | <i>d</i>                                                        | 12 5 21.78               | +1.23                    | 23.01                                | 38.42                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4059 | + 43 45 | N                                                          | <i>o - 4.0</i><br><i>b - 0.9</i><br><i>a - 41.5</i>             | 56 4.97                  | +2.25                    | 7.22                                 | N                                                            | <i>o - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 5 44.34                  | +1.23                    | 45.57                                | 38.35                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4066 | + 22 7  | N                                                          | <i>s</i>                                                        | 57 49.63                 | +1.73                    | 51.36                                | N                                                            | <i>s</i>                                                        | 7 28.27                  | +1.54                    | 29.81                                | 38.45                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4031 | + 16 17 | S                                                          | <i>Q + 1.55</i>                                                 | 49 12.22                 | +1.62                    | 13.84                                | S                                                            | <i>Q + 1.66</i>                                                 | 11 58 50.75              | +1.60                    | 52.35                                | 38.51                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4039 | + 4 8   | S                                                          |                                                                 | 51 47.09                 | +1.42                    | 48.51                                | S                                                            |                                                                 | 12 1 25.23               | +1.70                    | 26.93                                | 38.42                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4049 | + 4 18  | S                                                          |                                                                 | 53 30.32                 | +1.42                    | 31.74                                | S                                                            |                                                                 | 3 8.44                   | +1.70                    | 10.14                                | 38.40                                       |                     |                                   |                                                                              |
| Mar.10                                                                                                                    | 4100 | + 27 57 | N                                                          | <i>I. P. E.</i>                                                 | 12 4 24.87               | -1.26                    | 23.61                                | N                                                            | <i>I. P. E.</i>                                                 | 12 14 3.94               | -1.87                    | 2.07                                 | 9 38.46                                     |                     |                                   |                                                                              |
|                                                                                                                           | 4127 | + 24 36 | N                                                          | <i>d</i>                                                        | 9 60.71                  | -1.32                    | 59.39                                | N                                                            | <i>d</i>                                                        | 19 39.63                 | -1.81                    | 37.82                                | 38.43                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4079 | + 10 18 | S                                                          | <i>o - 4.0</i><br><i>b - 0.9</i><br><i>a - 41.5</i>             | 0 48.03                  | -1.58                    | 46.45                                | S                                                            | <i>o - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 10 26.60                 | -1.67                    | 24.93                                | 38.48                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4094 | + 2 33  | S                                                          | <i>s</i>                                                        | 3 17.61                  | -1.70                    | 15.91                                | S                                                            | <i>s</i>                                                        | 12 55.97                 | -1.60                    | 54.37                                | 38.46                                       |                     |                                   |                                                                              |
|                                                                                                                           | 4118 | + 2 53  | S                                                          | <i>Q - 1.55</i>                                                 | 7 33.17                  | -1.70                    | 31.47                                | S                                                            | <i>Q - 1.66</i>                                                 | 17 11.53                 | -1.60                    | 9.93                                 | 38.46                                       |                     |                                   |                                                                              |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation nil, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |                  |                  |                                                                   |                                                                 |                          |                          |                                     |                                                                     |                                                                 |                          |                          |                                     |                                             |                     |                                   |                                                                                                                                                    |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|-------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                     | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                     | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus. for Peral. Equations<br>S <sub>N</sub> - S <sub>E</sub> = + 0 <sup>s</sup> .025<br>H <sub>N</sub> - H <sub>E</sub> = + 0 <sup>s</sup> .022 | 3 L <sub>N</sub> - ρ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correc-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                    |                      |
| 1884                                                                                                                                                                |                  | ° ' "            |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                            | <i>m s</i>                                  |                     |                                   |                                                                                                                                                    |                      |
| Mar. 11                                                                                                                                                             | 3522             | + 20 4           | N                                                                 | <i>I. P. E.</i>                                                 | 10 12 44.15              | + 1.57                   | 45.72                               | N                                                                   | <i>I. P. W.</i>                                                 | 10 22 22.72              | + 1.52                   | 24.24                               | 9 38.52                                     | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3602             | + 32 59          | N                                                                 | <i>d</i>                                                        | 24 34.73                 | + 1.79                   | 36.52                               | N                                                                   | <i>d</i>                                                        | 34 13.71                 | + 1.33                   | 15.04                               | 38.52                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3610             | + 35 35          | N                                                                 | <i>o - 1.2</i><br><i>b - 1.0</i><br><i>a - 37.7</i>             | 26 11.41                 | + 1.84                   | 13.25                               | N                                                                   | <i>o - 2.2</i><br><i>b - 2.9</i><br><i>a + 28.4</i>             | 35 50.42                 | + 1.28                   | 51.70                               | 38.45                                       | .                   | 9 38.498                          |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3561             | + 9 22           | S                                                                 | <i>s</i>                                                        | 18 27.39                 | + 1.40                   | 28.79                               | S                                                                   | <i>s</i>                                                        | 28 5.60                  | + 1.64                   | 7.24                                | 38.45                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3562             | + 9 22           | S                                                                 | <i>Q + 1.56</i>                                                 | 18 47.53                 | + 1.40                   | 48.93                               | S                                                                   | <i>Q + 1.65</i>                                                 | 28 25.83                 | + 1.64                   | 27.47                               | 38.54                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3621             | + 7 33           | S                                                                 |                                                                 | 28 3.88                  | + 1.37                   | 5.25                                | S                                                                   |                                                                 | 37 42.09                 | + 1.67                   | 43.76                               | 38.51                                       | .                   |                                   |                                                                                                                                                    |                      |
| Mar. 11                                                                                                                                                             | 3661             | + 32 19          | N                                                                 | <i>I. P. E.</i>                                                 | 10 35 2.94               | - 1.34                   | 1.60                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 44 42.05              | - 1.97                   | 40.08                               | 9 38.48                                     | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3671             | + 23 48          | N                                                                 | <i>d</i>                                                        | 36 28.24                 | - 1.49                   | 26.75                               | N                                                                   | <i>d</i>                                                        | 46 7.09                  | - 1.83                   | 5.26                                | 38.51                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3684             | + 3 6            | S                                                                 | <i>o - 1.2</i><br><i>b - 1.0</i><br><i>a - 37.7</i>             | 38 32.95                 | - 1.81                   | 31.14                               | S                                                                   | <i>o - 2.2</i><br><i>b - 2.9</i><br><i>a + 28.4</i>             | 48 11.26                 | - 1.59                   | 9.67                                | 38.53                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 3693             | + 14 48          | S                                                                 | <i>s</i>                                                        | 39 38.44                 | - 1.64                   | 36.80                               | S                                                                   | <i>s</i>                                                        | 49 17.11                 | - 1.72                   | 15.39                               | 38.59                                       | .                   |                                   |                                                                                                                                                    |                      |
| Mar. 11                                                                                                                                                             | 4081             | + 16 17          | N                                                                 | <i>I. P. W.</i>                                                 | 11 49 0.60               | + 1.55                   | 2.15                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 58 39.17              | + 1.56                   | 40.73                               | 9 38.58                                     | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4057             | + 43 42          | N                                                                 | <i>d</i>                                                        | 55 30.67                 | + 2.15                   | 32.82                               | N                                                                   | <i>d</i>                                                        | 12 5 10.35               | + 1.13                   | 11.48                               | 38.66                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4059             | + 43 45          | N                                                                 | <i>o + 2.0</i><br><i>b - 2.7</i><br><i>a - 42.2</i>             | 55 53.30                 | + 2.15                   | 55.45                               | N                                                                   | <i>o - 2.2</i><br><i>b - 2.9</i><br><i>a + 28.4</i>             | 5 32.94                  | + 1.13                   | 34.07                               | 38.62                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4006             | + 22 7           | N                                                                 | <i>s</i>                                                        | 57 37.99                 | + 1.64                   | 39.63                               | N                                                                   | <i>s</i>                                                        | 7 16.80                  | + 1.49                   | 18.29                               | 38.66                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4081             | + 16 17          | S                                                                 | <i>Q + 1.56</i>                                                 | 49 0.65                  | + 1.55                   | 2.20                                | S                                                                   | <i>Q + 1.65</i>                                                 | 11 58 39.12              | + 1.56                   | 40.68                               | 38.48                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4039             | + 4 8            | S                                                                 |                                                                 | 51 35.46                 | + 1.35                   | 36.81                               | S                                                                   |                                                                 | 12 1 13.73               | + 1.70                   | 15.43                               | 38.62                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4049             | + 4 18           | S                                                                 |                                                                 | 53 18.66                 | + 1.35                   | 20.01                               | S                                                                   |                                                                 | 2 56.91                  | + 1.70                   | 58.61                               | 38.60                                       | .                   |                                   |                                                                                                                                                    |                      |
| Mar. 11                                                                                                                                                             | 4100             | + 27 57          | N                                                                 | <i>I. P. W.</i>                                                 | 12 4 13.21               | - 1.36                   | 11.85                               | N                                                                   | <i>I. P. W.</i>                                                 | 12 13 52.37              | - 1.90                   | 50.47                               | 9 38.62                                     | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4110             | + 21 10          | N                                                                 | <i>d</i>                                                        | 5 36.15                  | - 1.50                   | 34.65                               | N                                                                   | <i>d</i>                                                        | 15 15.16                 | - 1.80                   | 13.36                               | 38.71                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4127             | + 24 36          | N                                                                 | <i>o + 2.0</i><br><i>b - 2.7</i><br><i>a - 42.2</i>             | 9 49.07                  | - 1.43                   | 47.64                               | N                                                                   | <i>o - 2.2</i><br><i>b - 2.9</i><br><i>a + 28.4</i>             | 19 28.21                 | - 1.84                   | 26.37                               | 38.73                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4079             | + 10 18          | S                                                                 | <i>s</i>                                                        | 0 36.42                  | - 1.68                   | 34.74                               | S                                                                   | <i>s</i>                                                        | 10 15.07                 | - 1.67                   | 13.40                               | 38.66                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4094             | + 2 33           | S                                                                 | <i>Q - 1.56</i>                                                 | 3 5.94                   | - 1.80                   | 4.14                                | S                                                                   | <i>Q - 1.65</i>                                                 | 12 44.35                 | - 1.58                   | 42.77                               | 38.63                                       | .                   |                                   |                                                                                                                                                    |                      |
|                                                                                                                                                                     | 4116             | + 2 53           | S                                                                 |                                                                 | 7 21.56                  | - 1.79                   | 19.77                               | S                                                                   |                                                                 | 16 59.99                 | - 1.58                   | 58.41                               | 38.64                                       | .                   |                                   |                                                                                                                                                    |                      |

NOTE.— $1^s = 0^s.0225$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\* *o* is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*MOULMEIN (E) Lat.  $16^\circ 30'$ , Long.  $6^h 30^m 41^s$ ; AND PROME (W) Lat.  $18^\circ 49'$ , Long.  $6^h 21^m 2^s$ .

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> ; AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |               |             |                                  |                                                 |                    |                  |                           |                                    |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|----------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E           |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W             |                                                 |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of E Clock | Corrs. for Persl. Equations<br>S <sub>N</sub> - S <sub>E</sub> = + 0.025<br>H <sub>N</sub> - H <sub>E</sub> = + 0.022 | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                     |               |             | By Strahan, with Telescope No. 2 |                                                 |                    |                  |                           | By Heaviside, with Telescope No. 1 |                                                 |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | B A.C. Number | Declination | Star's Aspect                    | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                      | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                |                                                                                                                       |                      |
| 1884                                                                                                                                                                |               | ° ' "       |                                  |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                    |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 3522          | + 20 4      | N                                | <i>I. P. W.</i>                                 | 10 12 32.15        | + 1.69           | 33.84                     | N                                  | <i>I. P. E.</i>                                 | 10 22 10.82        | + 1.73           | 12.55                     | 9 38.71                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>d</i>                                        |                    |                  |                           | N                                  | <i>d</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3602          | + 32 59     | N                                | <i>c + 2.9</i>                                  | 24 22.72           | + 1.97           | 24.69                     | N                                  | <i>c + 0.4</i>                                  | 34 1.71            | + 1.62           | 3.33                      | 38.64                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>b - 1.6</i>                                  |                    |                  |                           | N                                  | <i>b + 3.0</i>                                  |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3610          | + 35 35     | N                                | <i>a - 44.6</i>                                 | 25 59.35           | + 2.04           | 61.39                     | N                                  | <i>a + 20.5</i>                                 | 35 38.44           | + 1.59           | 40.03                     | 38.64                                 | <i>m s</i>    | 9 38.662                       | +                                                                                                                     | 0.079                |
|                                                                                                                                                                     |               |             |                                  | <i>s</i>                                        |                    |                  |                           | N                                  | <i>s</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 3561          | + 9 22      | S                                | <i>Q + 1.59</i>                                 | 18 15.42           | + 1.49           | 16.91                     | S                                  | <i>Q + 1.66</i>                                 | 27 53.75           | + 1.82           | 55.57                     | 38.66                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3562          | + 9 22      | S                                |                                                 | 18 35.59           | + 1.49           | 37.08                     | S                                  |                                                 | 28 13.91           | + 1.82           | 15.73                     | 38.65                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3621          | + 7 33      | S                                |                                                 | 27 51.94           | + 1.46           | 53.40                     | S                                  |                                                 | 37 30.24           | + 1.83           | 32.07                     | 38.67                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 3661          | + 32 19     | N                                | <i>I. P. W.</i>                                 | 10 34 50.91        | - 1.22           | 49.69                     | N                                  | <i>I. P. E.</i>                                 | 10 44 30.05        | - 1.70           | 28.35                     | 9 38.66                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>d</i>                                        |                    |                  |                           | N                                  | <i>d</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3671          | + 23 48     | N                                | <i>c + 2.9</i>                                  | 36 16.27           | - 1.42           | 14.85                     | N                                  | <i>c + 0.4</i>                                  | 45 55.12           | - 1.62           | 53.50                     | 38.65                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>b - 1.6</i>                                  |                    |                  |                           | N                                  | <i>b + 3.0</i>                                  |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3643          | + 16 44     | S                                | <i>a - 44.6</i>                                 | 31 51.17           | - 1.56           | 49.61                     | S                                  | <i>a + 20.5</i>                                 | 41 29.81           | - 1.56           | 28.25                     | 38.64                                 | <i>m s</i>    | 9 38.624                       | +                                                                                                                     | 0.079                |
|                                                                                                                                                                     |               |             |                                  | <i>s</i>                                        |                    |                  |                           | S                                  | <i>s</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 3684          | + 3 6       | S                                | <i>Q - 1.59</i>                                 | 38 21.03           | - 1.79           | 19.24                     | S                                  | <i>Q - 1.66</i>                                 | 47 59.28           | - 1.45           | 57.83                     | 38.59                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3693          | + 14 48     | S                                |                                                 | 39 26.61           | - 1.59           | 25.02                     | S                                  |                                                 | 49 5.15            | - 1.55           | 3.60                      | 38.58                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4031          | + 16 17     | N                                | <i>I. P. E.</i>                                 | 11 48 48.90        | + 1.55           | 50.45                     | N                                  | <i>I. P. E.</i>                                 | 11 58 27.24        | + 1.76           | 29.00                     | 9 38.55                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>d</i>                                        |                    |                  |                           | N                                  | <i>d</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4057          | + 43 42     | N                                | <i>c - 1.3</i>                                  | 55 19.17           | + 2.14           | 21.31                     | N                                  | <i>c + 0.4</i>                                  | 12 45 8.24         | + 1.48           | 59.72                     | 38.41                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>b - 0.5</i>                                  |                    |                  |                           | N                                  | <i>b + 3.0</i>                                  |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4059          | + 43 45     | N                                | <i>a - 42.0</i>                                 | 55 41.73           | + 2.14           | 43.87                     | N                                  | <i>a + 20.5</i>                                 | 5 20.87            | + 1.48           | 22.35                     | 38.48                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>s</i>                                        |                    |                  |                           | N                                  | <i>s</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4066          | + 22 7      | N                                | <i>Q + 1.59</i>                                 | 57 26.45           | + 1.65           | 28.10                     | N                                  | <i>Q + 1.66</i>                                 | 7 4.85             | + 1.71           | 6.56                      | 38.46                                 | <i>m s</i>    | 9 38.487                       | +                                                                                                                     | 0.079                |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | N                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4081          | + 16 17     | S                                |                                                 | 48 48.97           | + 1.55           | 50.52                     | S                                  |                                                 | 11 58 27.26        | + 1.76           | 29.02                     | 38.50                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4039          | + 4 8       | S                                |                                                 | 51 23.82           | + 1.35           | 25.17                     | S                                  |                                                 | 12 1 1.82          | + 1.86           | 3.68                      | 38.51                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4049          | + 4 18      | S                                |                                                 | 53 7.04            | + 1.35           | 8.39                      | S                                  |                                                 | 2 45.03            | + 1.86           | 46.89                     | 38.50                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4100          | + 27 57     | N                                | <i>I. P. E.</i>                                 | 12 4 1.71          | - 1.42           | 0.29                      | N                                  | <i>I. P. E.</i>                                 | 12 13 40.48        | - 1.65           | 38.83                     | 9 38.54                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>d</i>                                        |                    |                  |                           | N                                  | <i>d</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4110          | + 21 10     | N                                | <i>c - 1.3</i>                                  | 5 24.63            | - 1.55           | 23.08                     | N                                  | <i>c + 0.4</i>                                  | 15 3.20            | - 1.60           | 1.60                      | 38.52                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>b - 0.5</i>                                  |                    |                  |                           | N                                  | <i>b + 3.0</i>                                  |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4127          | + 24 36     | N                                | <i>a - 42.0</i>                                 | 9 37.58            | - 1.48           | 36.10                     | N                                  | <i>a + 20.5</i>                                 | 19 16.22           | - 1.63           | 14.59                     | 38.49                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  | <i>s</i>                                        |                    |                  |                           | N                                  | <i>s</i>                                        |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4079          | + 10 18     | S                                | <i>Q - 1.59</i>                                 | 0 24.93            | - 1.74           | 23.19                     | S                                  | <i>Q - 1.66</i>                                 | 10 3.19            | - 1.51           | 1.68                      | 38.49                                 | <i>m s</i>    | 9 38.520                       | +                                                                                                                     | 0.079                |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4094          | + 2 33      | S                                |                                                 | 2 54.40            | - 1.86           | 52.54                     | S                                  |                                                 | 12 32.54           | - 1.45           | 31.09                     | 38.55                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
| Mar.12                                                                                                                                                              | 4116          | + 2 53      | S                                |                                                 | 7 10.01            | - 1.85           | 8.16                      | S                                  |                                                 | 16 48.14           | - 1.45           | 46.69                     | 38.53                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     |               |             |                                  |                                                 |                    |                  |                           | S                                  |                                                 |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |               |             |                                  |                                                     |                    |                  |                           |                                    |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|----------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|-----------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E           |                                                     |                    |                  |                           | TRANSITS OBSERVED AT W             |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of E Clock | Corrs. for Persl. Equations<br>$S_N - S_W = + 0^s.025$<br>$H_N - H_W = + 0^s.022$ | $\delta L_N - \rho$ |
|                                                                                                                                                                     |               |             | By Strahan, with Telescope No. 2 |                                                     |                    |                  |                           | By Heaviside, with Telescope No. 1 |                                                     |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                                   |                     |
|                                                                                                                                                                     | B.A.C. Number | Declination | Star's Aspect                    | Instrumental Position and Correction Constants      | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                      | Instrumental Position and Correction Constants      | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                |                                                                                   |                     |
| 1884                                                                                                                                                                |               | °           |                                  |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                    |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                   |                     |
| Mar.13                                                                                                                                                              | 3522          | + 20 4      | N                                | <i>I. P. E.</i>                                     | 10 12 20.33        | + 1.69           | 22.02                     | N                                  | <i>I. P. W.</i>                                     | 10 21 58.76        | + 1.72           | 60.48                     | 9 38.46                               |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3602          | + 32 59     | N                                | <i>d</i>                                            | 24 10.85           | + 1.93           | 12.78                     | N                                  | <i>d</i>                                            | 33 49.71           | + 1.58           | 51.29                     | 38.51                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3610          | + 35 35     | N                                | <i>c - 1.0</i><br><i>b + 1.7</i><br><i>a - 41.0</i> | 25 47.52           | + 1.99           | 49.51                     | N                                  | <i>c - 2.7</i><br><i>b + 5.3</i><br><i>a + 22.5</i> | 35 26.43           | + 1.55           | 27.98                     | 38.47                                 | <i>m s</i>    | 9 38.467                       |                                                                                   |                     |
|                                                                                                                                                                     | 3561          | + 9 22      | S                                | <i>s</i>                                            | 18 3.51            | + 1.51           | 5.02                      | S                                  | <i>s</i>                                            | 27 41.71           | + 1.81           | 43.52                     | 38.50                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3562          | + 9 22      | S                                | <i>Q + 1.61</i>                                     | 18 23.72           | + 1.51           | 25.23                     | S                                  | <i>Q + 1.66</i>                                     | 28 1.80            | + 1.81           | 3.61                      | 38.38                                 |               | +                              | 0.082                                                                             |                     |
|                                                                                                                                                                     | 3621          | + 7 33      | S                                |                                                     | 27 40.05           | + 1.48           | 41.53                     | S                                  |                                                     | 37 18.19           | + 1.82           | 20.01                     | 38.48                                 |               |                                |                                                                                   |                     |
| Mar.13                                                                                                                                                              | 3661          | + 32 19     | N                                | <i>I. P. E.</i>                                     | 10 34 39.18        | - 1.30           | 37.88                     | N                                  | <i>I. P. W.</i>                                     | 10 44 18.05        | - 1.73           | 16.32                     | 9 38.44                               |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3671          | + 23 48     | N                                | <i>d</i>                                            | 36 4.48            | - 1.46           | 3.02                      | N                                  | <i>d</i>                                            | 45 43.12           | - 1.65           | 41.47                     | 38.45                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3643          | + 16 44     | S                                | <i>c - 1.0</i><br><i>b + 1.7</i><br><i>a - 41.0</i> | 31 39.34           | - 1.59           | 37.75                     | S                                  | <i>c - 2.7</i><br><i>b + 5.3</i><br><i>a + 22.5</i> | 41 17.79           | - 1.58           | 16.21                     | 38.46                                 | <i>m s</i>    | 9 38.446                       |                                                                                   |                     |
|                                                                                                                                                                     | 3684          | + 3 6       | S                                | <i>s</i>                                            | 38 9.18            | - 1.80           | 7.38                      | S                                  | <i>s</i>                                            | 47 47.28           | - 1.46           | 45.82                     | 38.44                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 3693          | + 14 48     | S                                | <i>Q - 1.61</i>                                     | 39 14.73           | - 1.62           | 13.11                     | S                                  | <i>Q - 1.66</i>                                     | 48 53.11           | - 1.56           | 51.55                     | 38.44                                 |               | +                              | 0.082                                                                             |                     |
|                                                                                                                                                                     |               |             |                                  |                                                     |                    |                  |                           |                                    |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |                     |
| Mar.18                                                                                                                                                              | 4031          | + 16 17     | N                                | <i>I. P. W.</i>                                     | 11 48 36.64        | + 1.77           | 38.41                     | N                                  | <i>I. P. W.</i>                                     | 11 58 15.10        | + 1.78           | 16.88                     | 9 38.47                               |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4057          | + 43 42     | N                                | <i>d</i>                                            | 55 6.54            | + 2.62           | 9.16                      | N                                  | <i>d</i>                                            | 12 44 18.18        | + 1.49           | 47.67                     | 38.51                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4050          | + 43 45     | N                                | <i>c + 4.5</i><br><i>b + 2.8</i><br><i>a - 54.8</i> | 55 29.13           | + 2.62           | 31.75                     | N                                  | <i>c - 2.7</i><br><i>b + 7.0</i><br><i>a + 22.5</i> | 5 8.77             | + 1.49           | 10.26                     | 38.51                                 | <i>m s</i>    | 9 38.480                       |                                                                                   |                     |
|                                                                                                                                                                     | 4060          | + 22 7      | N                                | <i>s</i>                                            | 57 14.01           | + 1.92           | 15.93                     | N                                  | <i>s</i>                                            | 6 52.70            | + 1.73           | 54.43                     | 38.50                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4031          | + 16 17     | S                                | <i>Q + 1.61</i>                                     | 48 36.72           | + 1.77           | 38.49                     | S                                  | <i>Q + 1.66</i>                                     | 11 58 15.12        | + 1.78           | 16.90                     | 38.41                                 | <i>m s</i>    | 9 38.480                       |                                                                                   |                     |
|                                                                                                                                                                     | 4039          | + 4 8       | S                                |                                                     | 51 11.58           | + 1.51           | 13.09                     | S                                  |                                                     | 12 04 9.65         | + 1.88           | 51.53                     | 38.44                                 |               | +                              | 0.082                                                                             |                     |
|                                                                                                                                                                     | 4049          | + 4 18      | S                                |                                                     | 52 54.77           | + 1.51           | 56.28                     | S                                  |                                                     | 2 32.92            | + 1.88           | 34.80                     | 38.52                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     |               |             |                                  |                                                     |                    |                  |                           |                                    |                                                     |                    |                  |                           |                                       |               |                                |                                                                                   |                     |
| Mar.18                                                                                                                                                              | 4100          | + 27 57     | N                                | <i>I. P. W.</i>                                     | 12 3 49.34         | - 1.15           | 48.19                     | N                                  | <i>I. P. W.</i>                                     | 12 13 28.34        | - 1.64           | 26.70                     | 9 38.51                               |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4110          | + 21 10     | N                                | <i>d</i>                                            | 5 12.35            | - 1.32           | 11.03                     | N                                  | <i>d</i>                                            | 14 51.13           | - 1.58           | 49.55                     | 38.52                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4127          | + 24 36     | N                                | <i>c + 4.5</i><br><i>b + 2.8</i><br><i>a - 54.8</i> | 9 25.24            | - 1.24           | 24.00                     | N                                  | <i>c - 2.7</i><br><i>b + 7.0</i><br><i>a + 22.5</i> | 19 4.12            | - 1.62           | 2.50                      | 38.50                                 | <i>m s</i>    | 9 38.495                       |                                                                                   |                     |
|                                                                                                                                                                     | 4079          | + 10 18     | S                                | <i>s</i>                                            | 0 12.64            | - 1.59           | 11.05                     | S                                  | <i>s</i>                                            | 9 51.04            | - 1.48           | 49.56                     | 38.51                                 |               |                                |                                                                                   |                     |
|                                                                                                                                                                     | 4094          | + 2 33      | S                                | <i>Q - 1.61</i>                                     | 2 42.22            | - 1.75           | 40.47                     | S                                  | <i>Q - 1.66</i>                                     | 12 20.36           | - 1.43           | 18.93                     | 38.46                                 |               | +                              | 0.082                                                                             |                     |
|                                                                                                                                                                     | 4116          | + 2 53      | S                                |                                                     | 6 57.85            | - 1.74           | 56.11                     | S                                  |                                                     | 16 36.01           | - 1.43           | 34.58                     | 38.47                                 |               |                                |                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*MOULMEIN (E) Lat.  $16^\circ 30'$ , Long.  $6^\circ 30' 41''$ : AND PROME (W) Lat.  $18^\circ 49'$ , Long.  $6^\circ 21' 2''$ .

| Astronomical Date | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heavyside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrus for Persl. Equations<br>$S_N - S_S = + 0^s.025$<br>$H_N - H_S = + 0^s.022$ | $\delta L_N - \rho$ |
|-------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|---------------------|
|                   | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |                     |
| 1884              |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                   |                     |
| Mar. 14           | 3522             | + 20 4      | N                                                                 | <i>I. P. W.</i>                                                 | 10 12 7.75               | + 1.77                   | 9.52                                 | N                                                                   | <i>I. P. E.</i>                                                 | 10 21 46.50              | + 1.68                   | 48.18                                | 9 38.66                                     |                     |                                   |                                                                                   |                     |
|                   | 3602             | + 32 59     | N                                                                 | <i>d</i>                                                        | 23 58.23                 | + 2.13                   | 60.36                                | N                                                                   | <i>d</i>                                                        | 33 37.34                 | + 1.54                   | 38.88                                | 38.52                                       |                     |                                   |                                                                                   |                     |
|                   | 3610             | + 35 35     | N                                                                 | <i>c + 2.4</i><br><i>b + 0.6</i><br><i>a - 58.4</i>             | 25 34.83                 | + 2.23                   | 37.06                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 35 14.09                 | + 1.50                   | 15.59                                | 38.53                                       |                     |                                   |                                                                                   |                     |
|                   | 3561             | + 9 22      | S                                                                 | <i>s</i>                                                        | 17 51.02                 | + 1.50                   | 52.52                                | S                                                                   | <i>s</i>                                                        | 27 29.35                 | + 1.77                   | 31.12                                | 38.60                                       |                     |                                   |                                                                                   |                     |
|                   | 3562             | + 9 22      | S                                                                 | <i>Q + 1.61</i>                                                 | 18 11.26                 | + 1.50                   | 12.76                                | S                                                                   | <i>Q + 1.66</i>                                                 | 27 49.55                 | + 1.77                   | 51.32                                | 38.56                                       |                     |                                   |                                                                                   |                     |
|                   | 3621             | + 7 33      | S                                                                 |                                                                 | 27 27.56                 | + 1.46                   | 29.02                                | S                                                                   |                                                                 | 37 5 81                  | + 1.79                   | 7.60                                 | 38.58                                       |                     |                                   |                                                                                   |                     |
| Mar. 14           | 3661             | + 32 19     | N                                                                 | <i>I. P. W.</i>                                                 | 10 34 26.47              | - 1.10                   | 25.37                                | N                                                                   | <i>I. P. E.</i>                                                 | 10 44 5.65               | - 1.77                   | 3.88                                 | 9 38.51                                     |                     |                                   |                                                                                   |                     |
|                   | 3671             | + 23 48     | N                                                                 | <i>d</i>                                                        | 35 51.87                 | - 1.36                   | 50.51                                | N                                                                   | <i>d</i>                                                        | 45 30.78                 | - 1.68                   | 29.10                                | 38.59                                       |                     |                                   |                                                                                   |                     |
|                   | 3643             | + 16 44     | S                                                                 | <i>c + 2.4</i><br><i>b + 0.6</i><br><i>a - 58.4</i>             | 31 26.81                 | - 1.53                   | 25.28                                | S                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 41 5.46                  | - 1.61                   | 3.85                                 | 38.57                                       |                     |                                   |                                                                                   |                     |
|                   | 3684             | + 3 6       | S                                                                 | <i>s</i>                                                        | 37 56.71                 | - 1.85                   | 54.86                                | S                                                                   | <i>s</i>                                                        | 47 34.96                 | - 1.49                   | 33.47                                | 38.61                                       |                     |                                   |                                                                                   |                     |
|                   | 3693             | + 14 48     | S                                                                 | <i>Q - 1.61</i>                                                 | 39 2.22                  | - 1.58                   | 0.64                                 | S                                                                   | <i>Q - 1.66</i>                                                 | 48 40.83                 | - 1.59                   | 39.24                                | 38.60                                       |                     |                                   |                                                                                   |                     |
| Mar. 14           | 4031             | + 16 17     | N                                                                 | <i>I. P. E.</i>                                                 | 11 48 24.46              | + 1.48                   | 25.94                                | N                                                                   | <i>I. P. E.</i>                                                 | 11 58 2.90               | + 1.72                   | 4.62                                 | 9 38.68                                     |                     |                                   |                                                                                   |                     |
|                   | 4057             | + 43 42     | N                                                                 | <i>d</i>                                                        | 54 54.39                 | + 2.36                   | 56.75                                | N                                                                   | <i>d</i>                                                        | 12 43.3.91               | + 1.39                   | 35.30                                | 38.55                                       |                     |                                   |                                                                                   |                     |
|                   | 4059             | + 43 45     | N                                                                 | <i>c - 4.5</i><br><i>b - 0.9</i><br><i>a - 63.8</i>             | 55 16.96                 | + 2.36                   | 19.32                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 4 56.52                  | + 1.39                   | 57.91                                | 38.59                                       |                     |                                   |                                                                                   |                     |
|                   | 4066             | + 22 7      | N                                                                 | <i>s</i>                                                        | 57 1.88                  | + 1.63                   | 3.51                                 | N                                                                   | <i>s</i>                                                        | 6 40.48                  | + 1.66                   | 42.14                                | 38.63                                       |                     |                                   |                                                                                   |                     |
|                   | 4031             | + 16 17     | S                                                                 | <i>Q + 1.61</i>                                                 | 48 24.51                 | + 1.48                   | 25.99                                | S                                                                   | <i>Q + 1.66</i>                                                 | 11 58 2.85               | + 1.72                   | 4.57                                 | 38.58                                       |                     |                                   |                                                                                   |                     |
|                   | 4039             | + 4 8       | S                                                                 |                                                                 | 50 59.43                 | + 1.18                   | 60.61                                | S                                                                   |                                                                 | 12 0 37.43               | + 1.82                   | 39.25                                | 38.64                                       |                     |                                   |                                                                                   |                     |
|                   | 4049             | + 4 18      | S                                                                 |                                                                 | 52 42.66                 | + 1.18                   | 43.84                                | S                                                                   |                                                                 | 2 20.66                  | + 1.82                   | 22.48                                | 38.64                                       |                     |                                   |                                                                                   |                     |
| Mar. 14           | 4100             | + 27 57     | N                                                                 | <i>I. P. E.</i>                                                 | 12 3 37.24               | - 1.41                   | 35.83                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 13 16.06              | - 1.73                   | 14.33                                | 9 38.50                                     |                     |                                   |                                                                                   |                     |
|                   | 4110             | + 21 10     | N                                                                 | <i>d</i>                                                        | 4 60.24                  | - 1.61                   | 58.63                                | N                                                                   | <i>d</i>                                                        | 14 38.83                 | - 1.65                   | 37.18                                | 38.55                                       |                     |                                   |                                                                                   |                     |
|                   | 4127             | + 24 36     | N                                                                 | <i>c - 4.5</i><br><i>b - 0.9</i><br><i>a - 63.8</i>             | 9 13.13                  | - 1.52                   | 11.61                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 18 51.85                 | - 1.69                   | 50.16                                | 38.55                                       |                     |                                   |                                                                                   |                     |
|                   | 4079             | + 10 18     | S                                                                 | <i>s</i>                                                        | 11 59 60.50              | - 1.89                   | 58.61                                | S                                                                   | <i>s</i>                                                        | 9 38.81                  | - 1.56                   | 37.25                                | 38.64                                       |                     |                                   |                                                                                   |                     |
|                   | 4094             | + 2 33      | S                                                                 | <i>Q - 1.61</i>                                                 | 12 230.08                | - 2.07                   | 28.01                                | S                                                                   | <i>Q - 1.66</i>                                                 | 12 8.13                  | - 1.48                   | 6.65                                 | 38.64                                       |                     |                                   |                                                                                   |                     |
|                   | 4116             | + 2 53      | S                                                                 |                                                                 | 6 45.77                  | - 2.07                   | 43.70                                | S                                                                   |                                                                 | 16 23.73                 | - 1.49                   | 22.24                                | 38.54                                       |                     |                                   |                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 30^m 41^s$ ; AND PROME (W) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 3^s$ . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|---------------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persp. Equations<br>$S_N - S_S = +0^s.025$<br>$H_N - H_S = +0^s.022$ |
|                                                                                                                           | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                 |
| 1884                                                                                                                      |                  | ° '              |                                                                   |                                                                 | <i>h m. s</i>            | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                 |
| Mar. 15                                                                                                                   | 3522             | + 20 4           | N                                                                 | <i>I. P. E.</i>                                                 | 10 11 55.31              | + 1.69                   | 57.00                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 21 34.01              | + 1.50                   | 35.51                                | 9 38.51                                     |                     |                                   |                                                                                 |
|                                                                                                                           | 3602             | + 32 59          | N                                                                 | <i>d</i>                                                        | 23 45.82                 | + 2.04                   | 47.86                                | N                                                                   | <i>d</i>                                                        | 33 25.02                 | + 1.35                   | 26.37                                | 38.51                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3610             | + 35 35          | N                                                                 | <i>c - 2.2</i><br><i>b + 2.3</i><br><i>a - 58.0</i>             | 25 22.44                 | + 2.13                   | 24.57                                | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 35 1.79                  | + 1.32                   | 3.11                                 | 38.54                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3561             | + 9 22           | S                                                                 | <i>s</i>                                                        | 17 38.64                 | + 1.43                   | 40.07                                | S                                                                   | <i>s</i>                                                        | 27 17.08                 | + 1.62                   | 18.70                                | 38.63                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3562             | + 9 22           | S                                                                 | <i>Q + 1.60</i>                                                 | 17 58.79                 | + 1.43                   | 60.22                                | S                                                                   | <i>Q + 1.66</i>                                                 | 27 37.10                 | + 1.62                   | 38.72                                | 38.50                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3621             | + 7 33           | S                                                                 |                                                                 | 27 15.16                 | + 1.39                   | 16.55                                | S                                                                   |                                                                 | 36 53.49                 | + 1.63                   | 55.12                                | 38.57                                       |                     |                                   |                                                                                 |
| Mar. 15                                                                                                                   | 3661             | + 32 19          | N                                                                 | <i>I. P. E.</i>                                                 | 10 34 14.08              | - 1.18                   | 12.90                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 43 53.33              | - 1.96                   | 51.37                                | 9 38.47                                     |                     |                                   |                                                                                 |
|                                                                                                                           | 3671             | + 23 48          | N                                                                 | <i>d</i>                                                        | 35 39.48                 | - 1.41                   | 38.07                                | N                                                                   | <i>d</i>                                                        | 45 18.39                 | - 1.86                   | 16.53                                | 38.46                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3643             | + 16 44          | S                                                                 | <i>c - 2.2</i><br><i>b + 2.3</i><br><i>a - 58.0</i>             | 31 14.39                 | - 1.59                   | 12.80                                | S                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 40 53.08                 | - 1.78                   | 51.30                                | 38.50                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3684             | + 3 6            | S                                                                 | <i>s</i>                                                        | 37 44.32                 | - 1.90                   | 42.42                                | S                                                                   | <i>s</i>                                                        | 47 22.57                 | - 1.65                   | 20.92                                | 38.50                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 3693             | + 14 48          | S                                                                 | <i>Q - 1.60</i>                                                 | 38 49.74                 | - 1.64                   | 48.10                                | S                                                                   | <i>Q - 1.66</i>                                                 | 48 28.43                 | - 1.76                   | 26.67                                | 38.57                                       |                     |                                   |                                                                                 |
|                                                                                                                           |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                 |
| Mar. 15                                                                                                                   | 4031             | + 16 17          | N                                                                 | <i>I. P. W.</i>                                                 | 11 48 11.71              | + 1.64                   | 13.35                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 57 50.52              | + 1.54                   | 52.06                                | 9 38.71                                     |                     |                                   |                                                                                 |
|                                                                                                                           | 4057             | + 43 42          | N                                                                 | <i>d</i>                                                        | 54 41.54                 | + 2.57                   | 44.11                                | N                                                                   | <i>d</i>                                                        | 12 42 1.50               | + 1.20                   | 22.70                                | 38.59                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4059             | + 43 45          | N                                                                 | <i>c + 1.9</i><br><i>b + 0.4</i><br><i>a - 63.2</i>             | 55 4.30                  | + 2.57                   | 6.87                                 | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 4 44.08                  | + 1.20                   | 45.28                                | 38.41                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4066             | + 22 7           | N                                                                 | <i>s</i>                                                        | 56 49.10                 | + 1.81                   | 50.91                                | N                                                                   | <i>s</i>                                                        | 6 28.19                  | + 1.48                   | 29.67                                | 38.76                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4031             | + 16 17          | S                                                                 | <i>Q + 1.60</i>                                                 | 48 11.77                 | + 1.64                   | 13.41                                | S                                                                   | <i>Q + 1.66</i>                                                 | 11 57 50.52              | + 1.54                   | 52.06                                | 38.65                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4039             | + 4 8            | S                                                                 |                                                                 | 50 46.67                 | + 1.35                   | 48.02                                | S                                                                   |                                                                 | 12 025.07                | + 1.66                   | 26.73                                | 38.71                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4049             | + 4 18           | S                                                                 |                                                                 | 52 29.89                 | + 1.35                   | 31.24                                | S                                                                   |                                                                 | 2 8.28                   | + 1.66                   | 9.94                                 | 38.70                                       |                     |                                   |                                                                                 |
|                                                                                                                           |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                 |
| Mar. 15                                                                                                                   | 4100             | + 27 57          | N                                                                 | <i>I. P. W.</i>                                                 | 12 3 24.40               | - 1.22                   | 23.18                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 13 3.67               | - 1.90                   | 1.77                                 | 9 38.59                                     |                     |                                   |                                                                                 |
|                                                                                                                           | 4110             | + 21 10          | N                                                                 | <i>d</i>                                                        | 4 47.41                  | - 1.41                   | 46.00                                | N                                                                   | <i>d</i>                                                        | 14 26.48                 | - 1.83                   | 24.65                                | 38.65                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4127             | + 24 36          | N                                                                 | <i>c + 1.9</i><br><i>b + 0.4</i><br><i>a - 63.2</i>             | 8 60.30                  | - 1.32                   | 58.98                                | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 18 39.50                 | - 1.87                   | 37.63                                | 38.65                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4079             | + 10 18          | S                                                                 | <i>s</i>                                                        | 11 59 47.79              | - 1.71                   | 46.08                                | S                                                                   | <i>s</i>                                                        | 9 26.45                  | - 1.71                   | 24.74                                | 38.66                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4094             | + 2 33           | S                                                                 | <i>Q - 1.60</i>                                                 | 12 2 17.34               | - 1.89                   | 15.45                                | S                                                                   | <i>Q - 1.66</i>                                                 | 11 55.81                 | - 1.65                   | 54.16                                | 38.71                                       |                     |                                   |                                                                                 |
|                                                                                                                           | 4116             | + 2 53           | S                                                                 |                                                                 | 6 32.98                  | - 1.88                   | 31.10                                | S                                                                   |                                                                 | 16 11.38                 | - 1.65                   | 9.73                                 | 38.63                                       |                     |                                   |                                                                                 |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                               |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$S_N - S_S = + 0^{\circ}.025$<br>$H_N - H_S = + 0^{\circ}.022$ | $\delta L_N + \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                               |                     |
| 1884                                                                                                                                                                |                  | ° '              |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                               |                     |
| Mar. 8                                                                                                                                                              | 3757             | + 41 3           | N                                                                 | <i>I. P. E.</i>                                                 | 10 43 49.64              | + 1.66                   | 51.30                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 53 28.54              | + 1.44                   | 29.98                                | 9 38.68                                     |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3776             | + 20 48          | N                                                                 | <i>c - d</i>                                                    | 46 59.73                 | + 1.60                   | 61.33                                | N                                                                   | <i>c - d</i>                                                    | 56 38.36                 | + 1.62                   | 39.98                                | 38.65                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3797             | + 26 10          | N                                                                 | <i>b + 1.2</i><br><i>a - 5.6</i>                                | 51 42.23                 | + 1.61                   | 43.84                                | N                                                                   | <i>b - 0.9</i><br><i>a + 16.8</i>                               | 11 1 20.93               | + 1.58                   | 22.51                                | 38.67                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3768             | + 4 15           | S                                                                 | <i>s</i><br><i>Q + 1.58</i>                                     | 45 25.76                 | + 1.56                   | 27.32                                | N                                                                   | <i>s</i><br><i>Q + 1.67</i>                                     | 10 55 4.30               | + 1.73                   | 6.03                                 | 38.71                                       | <i>m s</i><br>9 38.705 | + 0.017                           | 0.002                                                                                         | 9 38.720            |
|                                                                                                                                                                     | 3780             | + 8 12           | S                                                                 |                                                                 | 48 30.95                 | + 1.57                   | 32.52                                | S                                                                   |                                                                 | 58 9.63                  | + 1.70                   | 11.33                                | 38.81                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3788             | + 7 59           | S                                                                 |                                                                 | 49 53.50                 | + 1.57                   | 55.07                                | S                                                                   |                                                                 | 59 32.08                 | + 1.70                   | 33.78                                | 38.71                                       |                        |                                   |                                                                                               |                     |
| Mar. 8                                                                                                                                                              | 3838             | + 16 4           | N                                                                 | <i>I. P. E.</i>                                                 | 10 59 3.67               | - 1.57                   | 2.10                                 | N                                                                   | <i>I. P. W.</i>                                                 | 11 8 42.52               | - 1.69                   | 40.83                                | 9 38.73                                     |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3851             | + 32 11          | N                                                                 | <i>c - d</i>                                                    | 11 2 54.14               | - 1.53                   | 52.61                                | N                                                                   | <i>c - d</i>                                                    | 12 33.09                 | - 1.81                   | 31.28                                | 38.67                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3856             | + 38 50          | N                                                                 | <i>b + 1.2</i><br><i>a - 5.6</i>                                | 3 43.01                  | - 1.51                   | 41.50                                | N                                                                   | <i>b - 0.9</i><br><i>a + 16.8</i>                               | 13 22.00                 | - 1.88                   | 20.12                                | 38.62                                       | <i>m s</i><br>9 38.718 | + 0.017                           | 0.001                                                                                         | 9 38.734            |
|                                                                                                                                                                     | 3824             | + 15 3           | S                                                                 | <i>s</i><br><i>Q - 1.58</i>                                     | 10 56 33.22              | - 1.57                   | 31.65                                | S                                                                   | <i>s</i><br><i>Q - 1.67</i>                                     | 6 12.09                  | - 1.68                   | 10.41                                | 38.76                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3838             | + 16 4           | S                                                                 |                                                                 | 59 3.60                  | - 1.57                   | 2.03                                 | S                                                                   |                                                                 | 8 42.53                  | - 1.69                   | 40.84                                | 38.81                                       |                        |                                   |                                                                                               |                     |
| Mar. 9                                                                                                                                                              | 3757             | + 41 3           | N                                                                 | <i>I. P. W.</i>                                                 | 10 43 46.78              | + 1.83                   | 48.61                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 53 26.14              | + 1.31                   | 27.45                                | 9 38.84                                     |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3776             | + 20 48          | N                                                                 | <i>c - d</i>                                                    | 46 57.16                 | + 1.46                   | 58.62                                | N                                                                   | <i>c - d</i>                                                    | 56 35.88                 | + 1.54                   | 37.42                                | 38.80                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3797             | + 26 10          | N                                                                 | <i>b + 1.2</i><br><i>a - 3.6</i>                                | 51 39.62                 | + 1.55                   | 41.17                                | N                                                                   | <i>b - 3.1</i><br><i>a + 18.4</i>                               | 11 1 18.46               | + 1.48                   | 19.94                                | 38.77                                       | <i>m s</i><br>9 38.755 | + 0.017                           | 0.001                                                                                         | 9 38.771            |
|                                                                                                                                                                     | 3768             | + 4 15           | S                                                                 | <i>s</i><br><i>Q + 1.56</i>                                     | 45 23.48                 | + 1.25                   | 24.73                                | S                                                                   | <i>s</i><br><i>Q + 1.68</i>                                     | 10 55 1.74               | + 1.65                   | 3.39                                 | 38.66                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3780             | + 8 12           | S                                                                 |                                                                 | 48 28.64                 | + 1.30                   | 29.94                                | S                                                                   |                                                                 | 58 7.05                  | + 1.63                   | 8.68                                 | 38.74                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3788             | + 7 59           | S                                                                 |                                                                 | 49 51.21                 | + 1.30                   | 52.51                                | S                                                                   |                                                                 | 59 29.60                 | + 1.63                   | 31.23                                | 38.72                                       |                        |                                   |                                                                                               |                     |
| Mar. 9                                                                                                                                                              | 3838             | + 16 4           | N                                                                 | <i>I. P. W.</i>                                                 | 10 58 61.35              | - 1.72                   | 59.63                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 8 40.07               | - 1.79                   | 38.28                                | 9 38.65                                     |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     | 3824             | + 15 3           | S                                                                 | <i>c - d</i>                                                    | 56 30.87                 | - 1.73                   | 29.14                                | S                                                                   | <i>c - d</i>                                                    | 6 9.66                   | - 1.78                   | 7.88                                 | 38.74                                       | <i>m s</i><br>9 38.730 | + 0.017                           | 0.002                                                                                         | 9 38.745            |
|                                                                                                                                                                     | 3838             | + 16 4           | S                                                                 | <i>b - 3.6</i><br><i>a - 3.6</i>                                | 58 61.22                 | - 1.72                   | 59.50                                | S                                                                   | <i>b - 3.1</i><br><i>a + 18.4</i>                               | 8 40.09                  | - 1.79                   | 38.30                                | 38.80                                       |                        |                                   |                                                                                               |                     |
|                                                                                                                                                                     |                  |                  |                                                                   | <i>s</i><br><i>Q - 1.56</i>                                     |                          |                          |                                      |                                                                     | <i>s</i><br><i>Q - 1.68</i>                                     |                          |                          |                                      |                                             |                        |                                   |                                                                                               |                     |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. $16^\circ 30'$ , Long. $6^h 30^m 41^s$ : AND PROME (W) Lat. $18^\circ 49'$ , Long. $6^h 21^m 2^s$ . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                    |                     |
|-----------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                     | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$S_N - S_E = + 0^s.025$<br>$H_N - H_E = + 0^s.022$ | $\delta L_N + \rho$ |
|                                                                                                                       | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                    |                     |
| 1884                                                                                                                  |                  | ° ' "            |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                    |                     |
| Mar.10                                                                                                                | 3757             | + 41 3           | N                                                                 | <i>I. P. W.</i>                                                 | 10 43 44.30              | +1.88                    | 46.18                                | N                                                                   | <i>I. P. E.</i>                                                 | 10 53 23.59              | +1.28                    | 24.87                                | 9 38.69                                     |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 3776             | + 20 48          | N                                                                 | <i>d</i>                                                        | 46 54.77                 | +1.50                    | 56.27                                | N                                                                   | <i>d</i>                                                        | 56 33.36                 | +1.55                    | 34.91                                | 38.64                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 3797             | + 26 10          | N                                                                 | <i>c - 2.7</i><br><i>b - 2.4</i><br><i>a - 38.6</i>             | 51 37.22                 | +1.58                    | 38.80                                | N                                                                   | <i>c - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 11 1 15.98               | +1.49                    | 17.47                                | 38.67                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 3768             | + 4 15           | S                                                                 | <i>s</i>                                                        | 45 21.09                 | +1.25                    | 22.34                                | S                                                                   | <i>s</i>                                                        | 10 54 59.31              | +1.70                    | 61.01                                | 38.67                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 3780             | + 8 12           | S                                                                 | <i>Q + 1.55</i>                                                 | 48 26.28                 | +1.31                    | 27.59                                | S                                                                   | <i>Q + 1.66</i>                                                 | 58 4.52                  | +1.67                    | 6.19                                 | 38.60                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 3788             | + 7 59           | S                                                                 |                                                                 | 49 48.79                 | +1.31                    | 50.10                                | S                                                                   |                                                                 | 59 27.06                 | +1.67                    | 28.73                                | 38.63                                       |                     |                                   |                                                                                    |                     |
| Mar.10                                                                                                                | 8838             | + 16 4           | N                                                                 | <i>I. P. W.</i>                                                 | 10 58 58.93              | -1.68                    | 57.25                                | N                                                                   | <i>I. P. E.</i>                                                 | 11 8 37.59               | -1.72                    | 35.87                                | 9 38.62                                     |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8851             | + 32 11          | N                                                                 | <i>d</i>                                                        | 11 249.04                | -1.40                    | 47.64                                | N                                                                   | <i>d</i>                                                        | 12 28.35                 | -1.91                    | 26.44                                | 38.80                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8866             | + 38 50          | N                                                                 | <i>c - 2.7</i><br><i>b - 2.4</i><br><i>a - 38.6</i>             | 3 37.78                  | -1.27                    | 36.51                                | N                                                                   | <i>c - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 13 17.27                 | -2.00                    | 15.27                                | 38.76                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8869             | + 18 4           | N                                                                 | <i>s</i>                                                        | 7 14.35                  | -1.65                    | 12.70                                | N                                                                   | <i>s</i>                                                        | 16 53.10                 | -1.74                    | 51.36                                | 38.66                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8821             | + 15 3           | S                                                                 | <i>Q - 1.55</i>                                                 | 10 56 28.53              | -1.69                    | 26.84                                | S                                                                   | <i>Q - 1.66</i>                                                 | 6 7.15                   | -1.71                    | 5.44                                 | 38.60                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8838             | + 16 4           | S                                                                 |                                                                 | 58 58.85                 | -1.68                    | 57.17                                | S                                                                   |                                                                 | 8 37.57                  | -1.72                    | 35.85                                | 38.68                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 8861             | + 5 31           | S                                                                 |                                                                 | 11 550.27                | -1.83                    | 48.44                                | S                                                                   |                                                                 | 15 28.64                 | -1.63                    | 27.01                                | 38.57                                       |                     |                                   |                                                                                    |                     |
| Mar.10                                                                                                                | 4199             | + 26 34          | N                                                                 | <i>I. P. E.</i>                                                 | 12 12 36.37              | +1.81                    | 38.18                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 22 15.28              | +1.48                    | 16.76                                | 9 38.58                                     |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4207             | + 26 34          | N                                                                 | <i>d</i>                                                        | 13 53.21                 | +1.81                    | 55.02                                | N                                                                   | <i>d</i>                                                        | 23 32.08                 | +1.48                    | 33.56                                | 38.54                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4240             | + 23 17          | N                                                                 | <i>c + 4.0</i><br><i>b - 0.9</i><br><i>a - 41.5</i>             | 19 50.40                 | +1.75                    | 52.15                                | N                                                                   | <i>c - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 29 29.18                 | +1.53                    | 30.71                                | 38.56                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4250             | + 9 26           | S                                                                 | <i>s</i>                                                        | 22 1.71                  | +1.50                    | 3.21                                 | S                                                                   | <i>s</i>                                                        | 31 40.09                 | +1.66                    | 41.75                                | 38.54                                       |                     |                                   |                                                                                    |                     |
| Mar.10                                                                                                                | 4285             | + 39 54          | N                                                                 | <i>Q + 1.55</i>                                                 |                          |                          |                                      |                                                                     | <i>Q + 1.66</i>                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4267             | + 11 5           | S                                                                 | <i>I. P. E.</i>                                                 | 12 30 18.91              | -0.97                    | 17.94                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 39 58.44              | -2.02                    | 56.42                                | 9 38.48                                     |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4277             | - 0 56           | S                                                                 | <i>d</i>                                                        | 26 33.23                 | -1.57                    | 31.66                                | S                                                                   | <i>d</i>                                                        | 36 11.81                 | -1.68                    | 10.13                                | 38.47                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       | 4292             | + 12 35          | S                                                                 | <i>c + 4.0</i><br><i>b - 0.9</i><br><i>a - 41.5</i>             | 28 30.32                 | -1.76                    | 28.56                                | S                                                                   | <i>c - 2.2</i><br><i>b - 1.8</i><br><i>a + 23.4</i>             | 38 8.69                  | -1.57                    | 7.12                                 | 38.56                                       |                     |                                   |                                                                                    |                     |
|                                                                                                                       |                  |                  | S                                                                 | <i>s</i>                                                        | 32 12.78                 | -1.55                    | 11.23                                | S                                                                   | <i>s</i>                                                        | 41 51.40                 | -1.69                    | 49.71                                | 38.48                                       |                     |                                   |                                                                                    |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation #12, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> ; AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                   |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$S_N - S_3 = + 0^s.025$<br>$H_N - H_3 = + 0^s.022$ | $\delta L_N + \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                   |                     |
| 1884                                                                                                                                                                |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                   |                     |
| Mar. 11                                                                                                                                                             | 3757             | + 41 3      | N                                                                 | <i>I. P. E.</i>                                                 | 10 43 42.27              | + 1.96                   | 44.23                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 53 21.65              | + 1.18                   | 22.83                                | 9 38.60                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3776             | + 20 48     | N                                                                 | <i>c - 1.2</i><br><i>d</i>                                      | 46 52.64                 | + 1.58                   | 54.22                                | N                                                                   | <i>c - 2.2</i><br><i>d</i>                                      | 56 31.38                 | + 1.51                   | 32.89                                | 38.67                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3797             | + 26 10     | N                                                                 | <i>b - 1.0</i><br><i>a - 37.7</i>                               | 51 35.03                 | + 1.67                   | 36.70                                | N                                                                   | <i>b - 2.9</i><br><i>a + 28.4</i>                               | 11 11 13.94              | + 1.43                   | 15.37                                | 38.67                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3768             | + 4 15      | S                                                                 | <i>s</i><br><i>Q + 1.56</i>                                     | 45 18.91                 | + 1.33                   | 20.24                                | S                                                                   | <i>s</i><br><i>Q + 1.65</i>                                     | 10 54 57.18              | + 1.70                   | 58.88                                | 38.64                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3780             | + 8 12      | S                                                                 |                                                                 | 48 24.09                 | + 1.39                   | 25.48                                | S                                                                   |                                                                 | 58 2.43                  | + 1.66                   | 4.09                                 | 38.61                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3788             | + 7 59      | S                                                                 |                                                                 | 49 46.66                 | + 1.38                   | 48.04                                | S                                                                   |                                                                 | 59 24.98                 | + 1.66                   | 26.64                                | 38.60                                       |                     |                                   |                                                                                   |                     |
| Mar. 11                                                                                                                                                             | 3838             | + 16 4      | N                                                                 | <i>I. P. E.</i>                                                 | 10 58 56.74              | - 1.62                   | 55.12                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 8 35.50               | - 1.74                   | 33.76                                | 9 38.64                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3851             | + 32 11     | N                                                                 | <i>c - 1.2</i><br><i>d</i>                                      | 11 246.96                | - 1.35                   | 45.61                                | N                                                                   | <i>c - 2.2</i><br><i>d</i>                                      | 12 26.21                 | - 1.95                   | 24.26                                | 38.65                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3856             | + 38 50     | N                                                                 | <i>b - 1.0</i><br><i>a - 37.7</i>                               | 3 35.75                  | - 1.21                   | 34.54                                | N                                                                   | <i>b - 2.9</i><br><i>a + 28.4</i>                               | 13 15.17                 | - 2.07                   | 13.10                                | 38.56                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3860             | + 18 4      | N                                                                 | <i>s</i><br><i>Q - 1.56</i>                                     | 7 12.24                  | - 1.59                   | 10.65                                | N                                                                   | <i>s</i><br><i>Q - 1.65</i>                                     | 16 51.10                 | - 1.76                   | 49.34                                | 38.69                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3824             | + 15 3      | S                                                                 |                                                                 | 10 56 26.36              | - 1.63                   | 24.73                                | S                                                                   |                                                                 | 6 5.14                   | - 1.73                   | 3.41                                 | 38.68                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3838             | + 16 4      | S                                                                 |                                                                 | 58 56.73                 | - 1.62                   | 55.11                                | S                                                                   |                                                                 | 8 35.52                  | - 1.74                   | 33.78                                | 38.67                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 3861             | + 5 31      | S                                                                 |                                                                 | 11 548.11                | - 1.77                   | 46.34                                | S                                                                   |                                                                 | 15 26.60                 | - 1.61                   | 24.99                                | 38.65                                       |                     |                                   |                                                                                   |                     |
| Mar. 11                                                                                                                                                             | 4207             | + 26 34     | N                                                                 | <i>I. P. W.</i>                                                 | 12 13 50.97              | + 1.73                   | 52.70                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 23 30.11              | + 1.42                   | 31.53                                | 9 38.83                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4240             | + 23 17     | N                                                                 | <i>c + 2.0</i><br><i>d</i>                                      | 19 48.21                 | + 1.66                   | 49.87                                | N                                                                   | <i>c - 2.2</i><br><i>d</i>                                      | 29 27.21                 | + 1.48                   | 28.69                                | 38.82                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4218             | + 10 22     | S                                                                 | <i>b - 2.7</i><br><i>a - 42.2</i>                               | 15 24.42                 | + 1.44                   | 25.86                                | S                                                                   | <i>b - 2.9</i><br><i>a + 28.4</i>                               | 25 2.96                  | + 1.63                   | 4.59                                 | 38.73                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4228             | + 10 57     | S                                                                 | <i>s</i><br><i>Q + 1.56</i>                                     | 17 54.87                 | + 1.46                   | 56.33                                | S                                                                   | <i>s</i><br><i>Q + 1.65</i>                                     | 27 33.39                 | + 1.62                   | 35.01                                | 38.68                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4250             | + 9 26      | S                                                                 |                                                                 | 21 59.48                 | + 1.43                   | 60.91                                | S                                                                   |                                                                 | 31 38.01                 | + 1.64                   | 39.65                                | 38.74                                       |                     |                                   |                                                                                   |                     |
| Mar. 11                                                                                                                                                             | 4285             | + 39 54     | N                                                                 | <i>I. P. W.</i>                                                 | 12 30 16.71              | - 1.08                   | 15.63                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 39 56.48              | - 2.09                   | 54.39                                | 9 38.76                                     |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4304             | + 28 11     | N                                                                 | <i>c + 2.0</i><br><i>d</i>                                      | 34 25.74                 | - 1.36                   | 23.78                                | N                                                                   | <i>c - 2.2</i><br><i>d</i>                                      | 44 4.43                  | - 1.90                   | 2.53                                 | 38.75                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4315             | + 28 10     | N                                                                 | <i>b - 2.7</i><br><i>a - 42.2</i>                               | 36 49.72                 | - 1.36                   | 48.36                                | N                                                                   | <i>b - 2.9</i><br><i>a + 28.4</i>                               | 46 28.98                 | - 1.90                   | 27.08                                | 38.72                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4267             | + 11 5      | S                                                                 | <i>s</i><br><i>Q - 1.56</i>                                     | 26 30.99                 | - 1.66                   | 29.33                                | S                                                                   | <i>s</i><br><i>Q - 1.65</i>                                     | 36 9.77                  | - 1.68                   | 8.09                                 | 38.76                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4277             | - 0 56      | S                                                                 |                                                                 | 28 28.15                 | - 1.85                   | 26.30                                | S                                                                   |                                                                 | 38 6.64                  | - 1.54                   | 5.10                                 | 38.80                                       |                     |                                   |                                                                                   |                     |
|                                                                                                                                                                     | 4292             | + 12 35     | S                                                                 |                                                                 | 32 10.48                 | - 1.64                   | 8.84                                 | S                                                                   |                                                                 | 41 49.38                 | - 1.70                   | 47.68                                | 38.84                                       |                     |                                   |                                                                                   |                     |

NOTE.— $1^d = 0^s.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

| MOULMEIN (E) Lat. $16^\circ 30'$ , Long. $6^h 30^m 41^s$ : AND PROME (W) Lat. $18^\circ 49'$ , Long. $6^h 21^m 8^s$ . |                  |             |                                                            |                                                                 |                          |                          |                                                              |               |                                                                 |                          |                                             |                                      |                                   |                                                                            |                     |
|-----------------------------------------------------------------------------------------------------------------------|------------------|-------------|------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------------------------------|---------------|-----------------------------------------------------------------|--------------------------|---------------------------------------------|--------------------------------------|-----------------------------------|----------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                     | STAR             |             | TRANSITS OBSERVED AT E<br>By Strahan, with Telescope No. 2 |                                                                 |                          |                          | TRANSITS OBSERVED AT W<br>By Heaviside, with Telescope No. 1 |               |                                                                 |                          | Difference of<br>Corrected Times<br>(W - E) |                                      | Correction for Rate of<br>W Clock | Corrs for Persl. Equations<br>$S_N - S_E = +0.025$<br>$H_N - H_E = +0.022$ | $\delta L_N + \rho$ |
|                                                                                                                       | B.A.C.<br>Number | Declination | Star's Aspect                                              | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time                         | Star's Aspect | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion                    | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                   | Mean<br>of<br>Group                                                        |                     |
| 1884                                                                                                                  |                  | ° ' "       |                                                            |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                                                     |               |                                                                 | <i>h m s</i>             | <i>s</i>                                    | <i>s</i>                             | <i>m s</i>                        |                                                                            |                     |
| Mar. 12                                                                                                               | 3757             | + 41 3      | N                                                          | <i>I. P. W.</i>                                                 | 10 43 39.97              | + 2.19                   | 42.16                                                        | N             | <i>I. P. E.</i>                                                 | 10 53 19.29              | + 1.52                                      | 20.81                                | 9 38.65                           |                                                                            |                     |
|                                                                                                                       | 3776             | + 20 48     | N                                                          | <i>d</i><br><i>c</i> + 2.9                                      | 46 50.46                 | + 1.70                   | 52.16                                                        | N             | <i>d</i><br><i>c</i> + 0.4                                      | 56 29.13                 | + 1.72                                      | 30.85                                | 38.69                             |                                                                            |                     |
|                                                                                                                       | 3797             | + 26 10     | N                                                          | <i>b</i> - 1.6<br><i>a</i> - 44.6                               | 51 32.87                 | + 1.81                   | 34.68                                                        | N             | <i>b</i> + 3.0<br><i>a</i> + 20.5                               | 11 11.72                 | + 1.67                                      | 13.39                                | 38.71                             |                                                                            |                     |
|                                                                                                                       | 3708             | + 4 15      | S                                                          | <i>s</i><br><i>Q</i> + 1.59                                     | 45 16.78                 | + 1.41                   | 18.19                                                        | S             | <i>s</i><br><i>Q</i> + 1.66                                     | 10 54 55.00              | + 1.86                                      | 56.86                                | 38.67                             |                                                                            |                     |
|                                                                                                                       | 3780             | + 8 12      | S                                                          |                                                                 | 48 21.94                 | + 1.47                   | 23.41                                                        | S             |                                                                 | 58 0.31                  | + 1.83                                      | 2.14                                 | 38.73                             |                                                                            |                     |
|                                                                                                                       | 3788             | + 7 59      | S                                                          |                                                                 | 49 44.51                 | + 1.47                   | 45.98                                                        | S             |                                                                 | 59 22.85                 | + 1.83                                      | 24.68                                | 38.70                             |                                                                            |                     |
| Mar. 12                                                                                                               | 3838             | + 16 4      | N                                                          | <i>I. P. W.</i>                                                 | 10 58 54.76              | - 1.57                   | 53.19                                                        | N             | <i>I. P. E.</i>                                                 | 11 8 33.41               | - 1.56                                      | 31.85                                | 9 38.66                           |                                                                            |                     |
|                                                                                                                       | 3851             | + 32 11     | N                                                          | <i>d</i><br><i>c</i> + 2.9                                      | 11 244.78                | - 1.23                   | 43.55                                                        | N             | <i>d</i><br><i>c</i> + 0.4                                      | 12 24.05                 | - 1.70                                      | 22.35                                | 38.80                             |                                                                            |                     |
|                                                                                                                       | 3856             | + 38 50     | N                                                          | <i>b</i> - 1.6<br><i>a</i> - 44.6                               | 3 33.49                  | - 1.06                   | 32.43                                                        | N             | <i>b</i> + 3.0<br><i>a</i> + 20.5                               | 13 12.97                 | - 1.77                                      | 11.20                                | 38.77                             |                                                                            |                     |
|                                                                                                                       | 3800             | + 18 4      | N                                                          | <i>s</i><br><i>Q</i> - 1.59                                     | 7 10.14                  | - 1.53                   | 8.61                                                         | N             | <i>s</i><br><i>Q</i> - 1.66                                     | 16 48.97                 | - 1.57                                      | 47.40                                | 38.79                             |                                                                            |                     |
|                                                                                                                       | 3824             | + 15 3      | S                                                          |                                                                 | 10 56 24.25              | - 1.59                   | 22.66                                                        | S             |                                                                 | 6 3.00                   | - 1.55                                      | 1.45                                 | 38.79                             |                                                                            |                     |
|                                                                                                                       | 3838             | + 16 4      | S                                                          |                                                                 | 58 54.59                 | - 1.57                   | 53.02                                                        | S             |                                                                 | 8 33.34                  | - 1.56                                      | 31.78                                | 38.76                             |                                                                            |                     |
|                                                                                                                       | 3861             | + 5 31      | S                                                          |                                                                 | 11 546.05                | - 1.75                   | 44.30                                                        | S             |                                                                 | 15 24.51                 | - 1.47                                      | 23.04                                | 38.74                             |                                                                            |                     |
| Mar. 12                                                                                                               | 4199             | + 26 34     | N                                                          | <i>I. P. E.</i>                                                 | 12 12 31.40              | + 1.73                   | 34.13                                                        | N             | <i>I. P. E.</i>                                                 | 12 22 11.03              | + 1.67                                      | 12.70                                | 9 38.57                           |                                                                            |                     |
|                                                                                                                       | 4207             | + 26 34     | N                                                          | <i>d</i><br><i>c</i> - 1.3                                      | 13 49.22                 | + 1.73                   | 50.95                                                        | N             | <i>d</i><br><i>c</i> + 0.4                                      | 23 27.91                 | + 1.67                                      | 29.58                                | 38.63                             |                                                                            |                     |
|                                                                                                                       | 4210             | + 23 17     | N                                                          | <i>b</i> - 0.5<br><i>a</i> - 42.0                               | 19 46.39                 | + 1.67                   | 48.06                                                        | N             | <i>b</i> + 3.0<br><i>a</i> + 20.5                               | 29 24.94                 | + 1.70                                      | 26.64                                | 38.58                             |                                                                            |                     |
|                                                                                                                       | 4218             | + 10 22     | S                                                          | <i>s</i><br><i>Q</i> + 1.59                                     | 15 22.65                 | + 1.44                   | 21.09                                                        | S             | <i>s</i><br><i>Q</i> + 1.66                                     | 25 0.83                  | + 1.81                                      | 2.64                                 | 38.55                             |                                                                            |                     |
|                                                                                                                       | 4228             | + 10 57     | S                                                          |                                                                 | 17 53.00                 | + 1.46                   | 54.46                                                        | S             |                                                                 | 27 31.30                 | + 1.80                                      | 33.10                                | 38.64                             |                                                                            |                     |
|                                                                                                                       | 4250             | + 9 26      | S                                                          |                                                                 | 21 57.66                 | + 1.43                   | 59.09                                                        | S             |                                                                 | 31 35.95                 | + 1.82                                      | 37.77                                | 38.68                             |                                                                            |                     |
| Mar. 12                                                                                                               | 4285             | + 39 54     | N                                                          | <i>I. P. E.</i>                                                 | 12 30 14.97              | - 1.15                   | 13.82                                                        | N             | <i>I. P. E.</i>                                                 | 12 39 54.13              | - 1.79                                      | 52.34                                | 9 38.52                           |                                                                            |                     |
|                                                                                                                       | 4304             | + 28 11     | N                                                          | <i>d</i><br><i>c</i> - 1.3                                      | 34 23.44                 | - 1.41                   | 22.03                                                        | N             | <i>d</i><br><i>c</i> + 0.4                                      | 44 2.25                  | - 1.66                                      | 0.59                                 | 38.56                             |                                                                            |                     |
|                                                                                                                       | 4315             | + 28 10     | N                                                          | <i>b</i> - 0.5<br><i>a</i> - 42.0                               | 36 48.02                 | - 1.41                   | 46.61                                                        | N             | <i>b</i> + 3.0<br><i>a</i> + 20.5                               | 46 26.81                 | - 1.66                                      | 25.15                                | 38.54                             |                                                                            |                     |
|                                                                                                                       | 4267             | + 11 5      | S                                                          | <i>s</i><br><i>Q</i> - 1.59                                     | 26 29.29                 | - 1.72                   | 27.57                                                        | S             | <i>s</i><br><i>Q</i> - 1.66                                     | 36 7.61                  | - 1.52                                      | 6.09                                 | 38.52                             |                                                                            |                     |
|                                                                                                                       | 4277             | - 0 56      | S                                                          |                                                                 | 28 26.40                 | - 1.91                   | 24.49                                                        | S             |                                                                 | 38 4.59                  | - 1.43                                      | 3.16                                 | 38.67                             |                                                                            |                     |
|                                                                                                                       | 4292             | + 12 35     | S                                                          |                                                                 | 32 8.74                  | - 1.70                   | 7.04                                                         | S             |                                                                 | 41 47.20                 | - 1.53                                      | 45.67                                | 38.63                             |                                                                            |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND PROME (W) Lat. 18° 49', Long. 6 <sup>h</sup> 21 <sup>m</sup> 2 <sup>s</sup> . |               |             |                                  |                                                     |                    |                  |                           |                                    |                                                     |                    |                  |                           |                                       |               |                                |                                                                                                                       |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|----------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------|-----------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E           |                                                     |                    |                  |                           | TRANSITS OBSERVED AT W             |                                                     |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of W Clock | Corrus. for Peral Equations<br>S <sub>N</sub> - S <sub>E</sub> = + 0.025<br>H <sub>N</sub> - H <sub>E</sub> = + 0.022 | δ L <sub>N</sub> + ρ |
|                                                                                                                                                                     |               |             | By Strahan, with Telescope No. 2 |                                                     |                    |                  |                           | By Heaviside, with Telescope No. 1 |                                                     |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | B A.C. Number | Declination | Star's Aspect                    | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                      | In-strumental Position and Correction Constants     | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                |                                                                                                                       |                      |
| 1884                                                                                                                                                                |               | ° '         |                                  |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                    |                                                     | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                                                                       |                      |
| Mar.13                                                                                                                                                              | 3757          | + 41 3      | N                                | <i>I. P. E.</i>                                     | 10 43 38.34        | + 2.14           | 40.48                     | N                                  | <i>I. P. W.</i>                                     | 10 53 17.59        | + 1.48           | 19.07                     | 9 38.59                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3776          | + 20 48     | N                                | <i>d</i>                                            | 46 48.74           | + 1.70           | 50.44                     | N                                  | <i>d</i>                                            | 56 27.32           | + 1.71           | 29.03                     | 38.59                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3797          | + 26 10     | N                                | <i>c - 1.0</i><br><i>b + 1.7</i><br><i>a - 41.0</i> | 51 31.16           | + 1.79           | 32.95                     | N                                  | <i>c - 2.7</i><br><i>b + 5.3</i><br><i>a + 22.5</i> | 11 1 9.94          | + 1.65           | 11.59                     | 38.64                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3768          | + 4 15      | S                                | <i>s</i>                                            | 45 15.05           | + 1.43           | 16.48                     | S                                  | <i>s</i>                                            | 10 54 53.17        | + 1.85           | 55.02                     | 38.54                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3780          | + 8 12      | S                                | <i>Q + 1.61</i>                                     | 48 20.22           | + 1.49           | 21.71                     | S                                  | <i>Q + 1.66</i>                                     | 57 58.49           | + 1.81           | 60.30                     | 38.59                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3788          | + 7 59      | S                                |                                                     | 49 42.77           | + 1.49           | 44.26                     | S                                  |                                                     | 59 21.03           | + 1.82           | 22.85                     | 38.59                                 |               |                                |                                                                                                                       |                      |
| Mar.13                                                                                                                                                              | 3838          | + 16 4      | N                                | <i>I. P. E.</i>                                     | 10 58 53.02        | - 1.60           | 51.42                     | N                                  | <i>I. P. W.</i>                                     | 11 8 31.50         | - 1.57           | 29.93                     | 9 38.51                               |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3851          | + 32 11     | N                                | <i>d</i>                                            | 11 243.20          | - 1.30           | 41.90                     | N                                  | <i>d</i>                                            | 12 22.20           | - 1.73           | 20.47                     | 38.57                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3856          | + 38 50     | N                                | <i>c - 1.0</i><br><i>b + 1.7</i><br><i>a - 41.0</i> | 3 31.87            | - 1.14           | 30.73                     | N                                  | <i>c - 2.7</i><br><i>b + 5.3</i><br><i>a + 22.5</i> | 13 11.14           | - 1.82           | 9.32                      | 38.59                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3869          | + 18 4      | N                                | <i>s</i>                                            | 7 8.51             | - 1.57           | 6.94                      | N                                  | <i>s</i>                                            | 16 47.09           | - 1.58           | 45.51                     | 38.57                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3824          | + 15 3      | S                                | <i>Q - 1.61</i>                                     | 10 56 22.61        | - 1.61           | 21.00                     | S                                  | <i>Q - 1.66</i>                                     | 5 61.10            | - 1.57           | 59.53                     | 38.53                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3838          | + 16 4      | S                                |                                                     | 58 52.90           | - 1.60           | 51.30                     | S                                  |                                                     | 8 31.57            | - 1.57           | 30.00                     | 38.70                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 3861          | + 5 31      | S                                |                                                     | 11 544.41          | - 1.77           | 42.64                     | S                                  |                                                     | 15 22.65           | - 1.48           | 21.17                     | 38.53                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4199          | + 26 34     | N                                | <i>I. P. W.</i>                                     | 12 12 30.26        | + 2.03           | 32.29                     | N                                  | <i>I. P. W.</i>                                     | 12 22 9.18         | + 1.68           | 10.86                     | 9 38.57                               |               |                                |                                                                                                                       |                      |
| Mar.18                                                                                                                                                              | 4207          | + 26 34     | N                                | <i>d</i>                                            | 13 47.11           | + 2.03           | 49.14                     | N                                  | <i>d</i>                                            | 23 26.01           | + 1.68           | 27.69                     | 38.55                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4240          | + 23 17     | N                                | <i>c + 4.5</i><br><i>b + 1.8</i><br><i>a - 54.8</i> | 19 44.29           | + 1.95           | 46.24                     | N                                  | <i>c - 2.7</i><br><i>b + 7.0</i><br><i>a + 22.5</i> | 29 23.10           | + 1.72           | 24.82                     | 38.58                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4218          | + 10 22     | S                                | <i>s</i>                                            | 15 20.67           | + 1.63           | 22.30                     | S                                  | <i>s</i>                                            | 24 58.99           | + 1.84           | 60.83                     | 38.53                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4228          | + 10 57     | S                                | <i>Q + 1.61</i>                                     | 17 51.00           | + 1.65           | 52.65                     | S                                  | <i>Q + 1.66</i>                                     | 27 29.40           | + 1.83           | 31.23                     | 38.58                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4250          | + 9 26      | S                                |                                                     | 21 55.72           | + 1.62           | 57.34                     | S                                  |                                                     | 31 34.03           | + 1.84           | 35.87                     | 38.53                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4285          | + 39 54     | N                                | <i>I. P. W.</i>                                     | 12 30 12.78        | - 0.76           | 12.02                     | N                                  | <i>I. P. W.</i>                                     | 12 39 52.36        | - 1.79           | 50.57                     | 9 38.55                               |               |                                |                                                                                                                       |                      |
| Mar.18                                                                                                                                                              | 4301          | + 28 11     | N                                | <i>d</i>                                            | 34 21.40           | - 1.14           | 20.26                     | N                                  | <i>d</i>                                            | 43 60.45           | - 1.64           | 58.81                     | 38.55                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4315          | + 28 10     | N                                | <i>c + 4.5</i><br><i>b + 1.8</i><br><i>a - 54.8</i> | 36 45.90           | - 1.14           | 44.76                     | N                                  | <i>c - 2.7</i><br><i>b + 7.0</i><br><i>a + 22.5</i> | 46 25.04           | - 1.64           | 23.40                     | 38.64                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4287          | + 11 5      | S                                | <i>s</i>                                            | 26 27.24           | - 1.57           | 25.67                     | S                                  | <i>s</i>                                            | 36 5.79            | - 1.49           | 4.30                      | 38.63                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4277          | - 0 56      | S                                | <i>Q - 1.61</i>                                     | 28 24.55           | - 1.82           | 22.73                     | S                                  | <i>Q - 1.66</i>                                     | 38 2.71            | - 1.40           | 1.31                      | 38.58                                 |               |                                |                                                                                                                       |                      |
|                                                                                                                                                                     | 4292          | + 12 35     | S                                |                                                     | 32 6.82            | - 1.54           | 5.28                      | S                                  |                                                     | 41 45.37           | - 1.50           | 43.87                     | 38.59                                 |               |                                |                                                                                                                       |                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation with all records having been transcribed by the same person.  
 \*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 30^m 41^s$ : AND PROME (W) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 2^s$ . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                        |                                   |                                                                                  |                     |
|---------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|------------------------|-----------------------------------|----------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                         | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                        | Correction for Rate of<br>W Clock | Corrns for Peral Equations<br>$S_N - S_E = + 0^s.025$<br>$H_N - H_E = + 0^s.022$ | $\delta L_N + \rho$ |
|                                                                                                                           | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group    |                                   |                                                                                  |                     |
| 1884                                                                                                                      |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                        |                                   |                                                                                  |                     |
| Mar. 14                                                                                                                   | 8757             | + 41 3      | N                                                                 | <i>I. P. W.</i>                                                 | 10 43 36.06              | + 2.42                   | 38.48                                | N                                                                   | <i>I. P. E.</i>                                                 | 10 53 15.75              | + 1.44                   | 17.19                                | 9 38.71                                     |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8776             | + 20 48     | N                                                                 | <i>c + 2.4</i><br><i>b + 0.6</i><br><i>a - 58.4</i>             | 46 46.69                 | + 1.79                   | 48.48                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 56 25.58                 | + 1.67                   | 27.25                                | 38.77                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8797             | + 26 10     | N                                                                 | <i>s</i>                                                        | 51 29.04                 | + 1.93                   | 30.97                                | N                                                                   | <i>s</i>                                                        | 11 1 8.07                | + 1.62                   | 9.69                                 | 38.72                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8768             | + 4 15      | S                                                                 | <i>Q + 1.61</i>                                                 | 45 13.12                 | + 1.39                   | 14.51                                | S                                                                   | <i>Q + 1.66</i>                                                 | 10 54 51.44              | + 1.82                   | 53.26                                | 38.75                                       | <i>m s</i><br>9 38.730 | + 0.012                           | 0.001                                                                            | 9 38.741            |
|                                                                                                                           | 8780             | + 8 12      | S                                                                 |                                                                 | 48 18.25                 | + 1.48                   | 19.73                                | S                                                                   |                                                                 | 57 56.68                 | + 1.78                   | 58.46                                | 38.73                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8788             | + 7 59      | S                                                                 |                                                                 | 49 40.82                 | + 1.47                   | 42.29                                | S                                                                   |                                                                 | 59 19.20                 | + 1.79                   | 20.99                                | 38.70                                       |                        |                                   |                                                                                  |                     |
| Mar. 14                                                                                                                   | 8838             | + 16 4      | N                                                                 | <i>I. P. W.</i>                                                 | 10 58 51.05              | - 1.55                   | 49.50                                | N                                                                   | <i>I. P. E.</i>                                                 | 11 8 29.69               | - 1.60                   | 28.09                                | 9 38.59                                     |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8851             | + 32 11     | N                                                                 | <i>c + 2.4</i><br><i>b + 0.6</i><br><i>a - 58.4</i>             | 11 241.04                | - 1.11                   | 39.93                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 12 20.37                 | - 1.77                   | 18.60                                | 38.67                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8856             | + 38 50     | N                                                                 | <i>s</i>                                                        | 3 29.70                  | - 0.88                   | 28.82                                | N                                                                   | <i>s</i>                                                        | 13 9.32                  | - 1.85                   | 7.47                                 | 38.65                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8869             | + 18 4      | N                                                                 | <i>Q - 1.61</i>                                                 | 7 6.46                   | - 1.50                   | 4.96                                 | N                                                                   | <i>Q - 1.66</i>                                                 | 16 45.24                 | - 1.62                   | 43.62                                | 38.66                                       | <i>m s</i><br>9 38.644 | + 0.012                           | 0.001                                                                            | 9 38.655            |
|                                                                                                                           | 8824             | + 15 3      | S                                                                 |                                                                 | 10 56 20.63              | - 1.58                   | 19.05                                | S                                                                   |                                                                 | 5 59.25                  | - 1.60                   | 57.65                                | 38.60                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8838             | + 16 4      | S                                                                 |                                                                 | 58 50.94                 | - 1.55                   | 49.39                                | S                                                                   |                                                                 | 8 29.69                  | - 1.60                   | 28.09                                | 38.70                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 8861             | + 5 31      | S                                                                 |                                                                 | 11 5 42.45               | - 1.80                   | 40.65                                | S                                                                   |                                                                 | 15 20.80                 | - 1.51                   | 19.29                                | 38.64                                       |                        |                                   |                                                                                  |                     |
| Mar. 14                                                                                                                   | 4199             | + 26 34     | N                                                                 | <i>I. P. E.</i>                                                 | 12 12 28.58              | + 1.76                   | 30.34                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 22 7.37               | + 1.61                   | 8.98                                 | 9 38.64                                     |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4207             | + 26 34     | N                                                                 | <i>c - 4.5</i><br><i>b - 0.9</i><br><i>a - 63.8</i>             | 13 45.44                 | + 1.76                   | 47.20                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 23 24.25                 | + 1.61                   | 25.86                                | 38.66                                       | <i>m s</i><br>9 38.675 | + 0.012                           | 0.001                                                                            | 9 38.686            |
|                                                                                                                           | 4240             | + 23 17     | N                                                                 | <i>s</i>                                                        | 19 42.66                 | + 1.67                   | 44.33                                | N                                                                   | <i>s</i>                                                        | 29 21.35                 | + 1.65                   | 23.00                                | 38.67                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4218             | + 10 22     | S                                                                 | <i>Q + 1.61</i>                                                 | 15 18.97                 | + 1.33                   | 20.30                                | S                                                                   | <i>Q + 1.66</i>                                                 | 24 57.27                 | + 1.76                   | 59.03                                | 38.73                                       |                        |                                   |                                                                                  |                     |
| Mar. 14                                                                                                                   | 4285             | + 39 54     | N                                                                 | <i>I. P. E.</i>                                                 | 12 30 11.17              | - 1.02                   | 10.15                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 39 50.63              | - 1.86                   | 48.77                                | 9 38.62                                     |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4304             | + 28 11     | N                                                                 | <i>c - 4.5</i><br><i>b - 0.9</i><br><i>a - 63.8</i>             | 34 19.72                 | - 1.42                   | 18.30                                | N                                                                   | <i>c - 1.1</i><br><i>b + 2.4</i><br><i>a + 23.3</i>             | 43 58.65                 | - 1.73                   | 56.92                                | 38.62                                       | <i>m s</i><br>9 38.652 | + 0.012                           | 0.002                                                                            | 9 38.662            |
|                                                                                                                           | 4315             | + 28 10     | N                                                                 | <i>s</i>                                                        | 36 44.34                 | - 1.42                   | 42.92                                | N                                                                   | <i>s</i>                                                        | 46 23.27                 | - 1.73                   | 21.54                                | 38.62                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4267             | + 11 5      | S                                                                 | <i>Q - 1.61</i>                                                 | 26 25.70                 | - 1.87                   | 23.83                                | S                                                                   | <i>Q - 1.66</i>                                                 | 36 4.02                  | - 1.57                   | 2.45                                 | 38.62                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4277             | - 0 56      | S                                                                 |                                                                 | 28 22.94                 | - 2.16                   | 20.78                                | S                                                                   |                                                                 | 37 60.95                 | - 1.45                   | 59.50                                | 38.72                                       |                        |                                   |                                                                                  |                     |
|                                                                                                                           | 4292             | + 12 35     | S                                                                 |                                                                 | 32 5.16                  | - 1.83                   | 3.33                                 | S                                                                   |                                                                 | 41 43.62                 | - 1.58                   | 42.04                                | 38.71                                       |                        |                                   |                                                                                  |                     |

NOTE.— $1^s = 0^s.025$ . Transcribing Equation *wt*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 30^m 41^s$ ; AND PROME (W) Lat. $18^{\circ} 49'$ , Long. $6^h 21^m 2^s$ . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                |
|---------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------------------------|
| Astronomical Date                                                                                                         | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$S_N - S_E = + 0^{\circ} 025$<br>$H_N - H_E = + 0^{\circ} 022$ |
|                                                                                                                           | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                |
| 1884                                                                                                                      |                  |             |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                |
| Mar. 15                                                                                                                   | 3757             | + 41 3      | N                                                                 | <i>I. P. E.</i>                                                 | 10 43 34.56              | + 2.31                   | 36.87                                | N                                                                   | <i>I. P. W.</i>                                                 | 10 53 14.25              | + 1.24                   | 15.49                                | 9 38.62                                     |                     |                                   |                                                                                                |
|                                                                                                                           | 3776             | + 20 48     | N                                                                 | <i>d</i>                                                        | 46 45.13                 | + 1.71                   | 46.84                                | N                                                                   | <i>d</i>                                                        | 56 24.02                 | + 1.49                   | 25.51                                | 38.67                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3797             | + 26 10     | N                                                                 | <i>c - 2.2</i><br><i>b + 2.3</i><br><i>a - 58.0</i>             | 51 27.59                 | + 1.84                   | 29.43                                | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 11 1 6.65                | + 1.44                   | 8.09                                 | 38.66                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3768             | + 4 15      | S                                                                 | <i>s</i>                                                        | 45 11.57                 | + 1.32                   | 12.89                                | S                                                                   | <i>s</i>                                                        | 10 54 49.87              | + 1.66                   | 51.53                                | 38.64                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3780             | + 8 12      | S                                                                 | <i>Q + 1.60</i>                                                 | 48 16.72                 | + 1.41                   | 18.13                                | S                                                                   | <i>Q + 1.66</i>                                                 | 57 55.13                 | + 1.62                   | 56.75                                | 38.62                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3788             | + 7 59      | S                                                                 |                                                                 | 49 39.24                 | + 1.40                   | 40.64                                | S                                                                   |                                                                 | 59 17.78                 | + 1.63                   | 19.41                                | 38.77                                       |                     |                                   |                                                                                                |
| Mar. 15                                                                                                                   | 3838             | + 16 4      | N                                                                 | <i>I. P. E.</i>                                                 | 10 58 49.43              | - 1.61                   | 47.82                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 8 28.26               | - 1.77                   | 26.49                                | 9 38.67                                     |                     |                                   |                                                                                                |
|                                                                                                                           | 3851             | + 32 11     | N                                                                 | <i>d</i>                                                        | 11 2 39.46               | - 1.18                   | 38.28                                | N                                                                   | <i>d</i>                                                        | 12 18.90                 | - 1.96                   | 16.94                                | 38.66                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3856             | + 38 50     | N                                                                 | <i>c - 2.2</i><br><i>b + 2.3</i><br><i>a - 58.0</i>             | 3 28.13                  | - 0.96                   | 27.17                                | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 13 7.85                  | - 2.05                   | 5.80                                 | 38.63                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3800             | + 18 4      | N                                                                 | <i>s</i>                                                        | 7 4.88                   | - 1.57                   | 3.31                                 | N                                                                   | <i>s</i>                                                        | 16 43.81                 | - 1.79                   | 42.02                                | 38.71                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3824             | + 15 3      | S                                                                 | <i>Q - 1.60</i>                                                 | 10 56 19.04              | - 1.63                   | 17.41                                | S                                                                   | <i>Q - 1.66</i>                                                 | 5 57.85                  | - 1.77                   | 56.08                                | 38.67                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3838             | + 16 4      | S                                                                 |                                                                 | 58 49.33                 | - 1.61                   | 47.72                                | S                                                                   |                                                                 | 8 28.25                  | - 1.77                   | 26.48                                | 38.76                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 3861             | + 5 31      | S                                                                 |                                                                 | 11 5 40.88               | - 1.85                   | 39.03                                | S                                                                   |                                                                 | 15 19.38                 | - 1.67                   | 17.71                                | 38.68                                       |                     |                                   |                                                                                                |
| Mar. 15                                                                                                                   | 4240             | + 23 17     | N                                                                 | <i>I. P. W.</i>                                                 | 12 19 40.65              | + 1.84                   | 42.49                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 29 19.93              | + 1.47                   | 21.40                                | 9 38.91                                     |                     |                                   |                                                                                                |
|                                                                                                                           | 4218             | + 10 22     | S                                                                 | <i>d</i>                                                        | 15 17.00                 | + 1.49                   | 18.49                                | S                                                                   | <i>d</i>                                                        | 24 55.77                 | + 1.61                   | 57.38                                | 38.89                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4228             | + 10 57     | S                                                                 | <i>c + 1.9</i><br><i>b + 0.4</i><br><i>a - 63.2</i>             | 17 47.38                 | + 1.51                   | 48.89                                | S                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 27 26.22                 | + 1.60                   | 27.82                                | 38.93                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4250             | + 9 26      | S                                                                 | <i>s</i>                                                        | 21 52.08                 | + 1.47                   | 53.55                                | S                                                                   | <i>s</i>                                                        | 31 30.88                 | + 1.61                   | 32.49                                | 38.94                                       |                     |                                   |                                                                                                |
| Mar. 15                                                                                                                   | 4285             | + 39 54     | N                                                                 | <i>I. P. W.</i>                                                 | 12 30 9.11               | - 0.80                   | 8.31                                 | N                                                                   | <i>I. P. W.</i>                                                 | 12 39 49.09              | - 2.07                   | 47.02                                | 9 38.71                                     |                     |                                   |                                                                                                |
|                                                                                                                           | 4304             | + 28 11     | N                                                                 | <i>d</i>                                                        | 34 17.75                 | - 1.21                   | 16.54                                | N                                                                   | <i>d</i>                                                        | 43 57.20                 | - 1.90                   | 55.30                                | 38.76                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4315             | + 28 10     | N                                                                 | <i>c + 1.9</i><br><i>b + 0.4</i><br><i>a - 63.2</i>             | 36 42.31                 | - 1.21                   | 41.10                                | N                                                                   | <i>c - 2.3</i><br><i>b - 3.7</i><br><i>a + 22.5</i>             | 46 21.80                 | - 1.90                   | 19.90                                | 38.80                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4267             | + 11 5      | S                                                                 | <i>s</i>                                                        | 26 23.72                 | - 1.69                   | 22.03                                | S                                                                   | <i>s</i>                                                        | 36 2.55                  | - 1.72                   | 0.83                                 | 38.80                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4277             | - 0 56      | S                                                                 | <i>Q - 1.60</i>                                                 | 28 21.00                 | - 1.97                   | 19.03                                | S                                                                   | <i>Q - 1.66</i>                                                 | 37 59.49                 | - 1.62                   | 57.87                                | 38.84                                       |                     |                                   |                                                                                                |
|                                                                                                                           | 4292             | + 12 35     | S                                                                 |                                                                 | 32 3.21                  | - 1.65                   | 1.56                                 | S                                                                   |                                                                 | 41 42.10                 | - 1.74                   | 40.36                                | 38.80                                       |                     |                                   |                                                                                                |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *all*, all records having been transcribed by the same person.  
 $\rho$  is the retardation of an electric signal between the stations.



TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |                  |                                                                   |                                                                           |                          |                          |                                      |                                                                     |                                                                           |                          |                          |                                      |                                             |                         |                                   |                                                                                                    |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|-------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                           |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                           |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                         | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>$S_N - S_S = -0^{\text{m}}.004$<br>$H_N - H_S = +0^{\text{m}}.046$ | $\delta L_N - \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants           | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants           | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group     |                                   |                                                                                                    |                     |
| 1884                                                                                                                                                                |                  | ° ' "            |                                                                   |                                                                           | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                           | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                         |                                   |                                                                                                    |                     |
| Mar.26                                                                                                                                                              | 3964             | + 22 0           | N                                                                 | <i>I. P. E.</i>                                                           | 11 34 50.04              | +1.57                    | 51.61                                | N                                                                   | <i>I. P. E.</i>                                                           | 11 53 44.66              | +1.80                    | 46.46                                | 18 54.85                                    |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3990             | + 20 52          | N                                                                 | <i>d</i><br>$c - 0.2$                                                     | 42 4.98                  | +1.57                    | 6.55                                 | N                                                                   | <i>d</i><br>$c - 0.6$                                                     | 12 0 59.58               | +1.80                    | 61.38                                | 54.83                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3998             | + 35 35          | N                                                                 | $b - 1.6$<br>$a - 0.2$                                                    | 43 44.96                 | +1.56                    | 46.52                                | N                                                                   | $b + 1.7$<br>$a - 1.2$                                                    | 2 39.58                  | +1.81                    | 41.39                                | 54.87                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3971             | + 5 23           | S                                                                 | <i>s</i><br>$Q + 1.61$                                                    | 36 16.37                 | +1.57                    | 17.94                                | S                                                                   | <i>s</i><br>$Q + 1.77$                                                    | 11 55 10.90              | +1.79                    | 12.69                                | 54.75                                       | <i>m s</i><br>18 54.823 | - 0.028                           | + 0.025                                                                                            | 18 54.820           |
|                                                                                                                                                                     | 3975             | - 6 2            | S                                                                 |                                                                           | 38 4.69                  | +1.58                    | 6.27                                 | S                                                                   |                                                                           | 56 59.32                 | +1.78                    | 61.10                                | 54.83                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3982             | + 7 11           | S                                                                 |                                                                           | 39 58.80                 | +1.57                    | 60.37                                | S                                                                   |                                                                           | 58 53.39                 | +1.79                    | 55.18                                | 54.81                                       |                         |                                   |                                                                                                    |                     |
| Mar.26                                                                                                                                                              | 4039             | + 4 8            | S                                                                 | <i>I. P. E.</i>                                                           | 11 52 25.44              | -1.65                    | 23.79                                | S                                                                   | <i>I. P. E.</i>                                                           | 12 11 20.38              | -1.75                    | 18.63                                | 18 54.84                                    |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4040             | + 4 18           | S                                                                 | <i>d</i><br>$c - 0.2$<br>$b - 1.6$<br>$a - 0.2$<br><i>s</i><br>$Q - 1.61$ | 54 8.64                  | -1.65                    | 6.99                                 | S                                                                   | <i>d</i><br>$c - 0.6$<br>$b + 1.7$<br>$a - 1.2$<br><i>s</i><br>$Q - 1.77$ | 13 3.56                  | -1.75                    | 1.81                                 | 54.82                                       | <i>m s</i><br>18 54.830 | - 0.028                           | + 0.050                                                                                            | 18 54.852           |
| Mar.27                                                                                                                                                              | 3964             | + 22 0           | N                                                                 | <i>I. P. W.</i>                                                           | 11 34 52.05              | +1.65                    | 53.70                                | N                                                                   | <i>I. P. W.</i>                                                           | 11 53 46.94              | +1.68                    | 48.62                                | 18 54.92                                    |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3990             | + 20 52          | N                                                                 | <i>d</i><br>$c + 1.3$                                                     | 42 6.96                  | +1.64                    | 8.60                                 | N                                                                   | <i>d</i><br>$c - 0.2$                                                     | 12 1 1.95                | +1.68                    | 3.63                                 | 55.03                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3998             | + 35 35          | N                                                                 | $b + 0.1$<br>$a - 7.6$                                                    | 43 46.91                 | +1.71                    | 48.62                                | N                                                                   | $b - 2.9$<br>$a - 2.4$                                                    | 2 41.94                  | +1.68                    | 43.62                                | 55.00                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3971             | + 5 23           | S                                                                 | <i>s</i><br>$Q + 1.60$                                                    | 36 18.42                 | +1.60                    | 20.02                                | S                                                                   | <i>s</i><br>$Q + 1.75$                                                    | 11 55 13.26              | +1.68                    | 14.94                                | 54.92                                       | <i>m s</i><br>18 54.962 | - 0.030                           | + 0.025                                                                                            | 18 54.957           |
|                                                                                                                                                                     | 3975             | - 6 2            | S                                                                 |                                                                           | 38 6.79                  | +1.56                    | 8.35                                 | S                                                                   |                                                                           | 57 1.66                  | +1.67                    | 3.33                                 | 54.98                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 3982             | + 7 11           | S                                                                 |                                                                           | 40 0.85                  | +1.60                    | 2.45                                 | S                                                                   |                                                                           | 58 55.69                 | +1.68                    | 57.37                                | 54.92                                       |                         |                                   |                                                                                                    |                     |
| Mar.27                                                                                                                                                              | 4018             | + 41 34          | N                                                                 | <i>I. P. W.</i>                                                           | 11 47 59.07              | -1.46                    | 57.61                                | N                                                                   | <i>I. P. W.</i>                                                           | 12 6 54.44               | -1.81                    | 51.63                                | 18 55.02                                    |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4056             | + 22 44          | N                                                                 | <i>d</i><br>$c + 1.3$                                                     | 55 57.96                 | -1.55                    | 56.41                                | N                                                                   | <i>d</i><br>$c - 0.2$                                                     | 14 53.16                 | -1.82                    | 51.34                                | 54.93                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4066             | + 22 6           | N                                                                 | $b + 0.1$<br>$a - 7.6$                                                    | 58 30.35                 | -1.55                    | 28.80                                | N                                                                   | $b - 2.9$<br>$a - 2.4$                                                    | 17 25.59                 | -1.82                    | 23.77                                | 54.97                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4031             | + 16 18          | S                                                                 | <i>s</i><br>$Q - 1.60$                                                    | 49 52.80                 | -1.57                    | 51.23                                | S                                                                   | <i>s</i><br>$Q - 1.75$                                                    | 8 47.95                  | -1.82                    | 46.13                                | 54.90                                       | <i>m s</i><br>18 54.948 | - 0.030                           | + 0.025                                                                                            | 18 54.943           |
|                                                                                                                                                                     | 4039             | + 4 8            | S                                                                 |                                                                           | 52 27.48                 | -1.61                    | 25.87                                | S                                                                   |                                                                           | 11 22.64                 | -1.82                    | 26.82                                | 54.95                                       |                         |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4049             | + 4 18           | S                                                                 |                                                                           | 54 10.73                 | -1.61                    | 9.12                                 | S                                                                   |                                                                           | 13 5.86                  | -1.82                    | 4.04                                 | 54.92                                       |                         |                                   |                                                                                                    |                     |

NOTE.— $1^{\text{d}} = 0^{\text{m}}.0225$ . Transcribing Equation  $\text{w}2$ , all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                    |                                                                 |                          |                          |                                      |                                             |                         |                                   |                                                                                                                                                   |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|--------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|-------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Hearside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                         | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>o</sup> .004<br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>o</sup> .046 | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                      | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group     |                                   |                                                                                                                                                   |                      |
| 1884                                                                                                                                                                |                  | ° ' "            |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                    |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                         |                                   |                                                                                                                                                   |                      |
| Mar.27                                                                                                                                                              | 4594             | + 26 17          | N                                                                 | <i>I. P. E.</i>                                                 | 13 41 27.19              | + 1.68                   | 28.87                                | N                                                                  | <i>I. P. W.</i>                                                 | 14 0 22.12               | + 1.68                   | 23.80                                | 18 54.93                                    |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4664             | + 22 16          | N                                                                 | <i>c</i> + 0.7<br><i>d</i>                                      | 53 19.96                 | + 1.66                   | 21.62                                | N                                                                  | <i>c</i> - 0.2<br><i>d</i>                                      | 12 14.81                 | + 1.68                   | 16.49                                | 54.87                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4615             | + 16 22          | S                                                                 | <i>b</i> + 0.3<br><i>a</i> - 11.9                               | 44 0.04                  | + 1.63                   | 1.67                                 | S                                                                  | <i>b</i> - 2.9<br><i>a</i> - 2.4                                | 2 54.93                  | + 1.68                   | 56.61                                | 54.94                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4651             | + 1 37           | S                                                                 | <i>s</i><br><i>Q</i> + 1.60                                     | 50 40.69                 | + 1.56                   | 42.25                                | S                                                                  | <i>s</i><br><i>Q</i> + 1.75                                     | 9 35.46                  | + 1.67                   | 37.13                                | 54.88                                       | <i>m s</i><br>18 54.900 | 1                                 | 0.030                                                                                                                                             | +                    |
|                                                                                                                                                                     | 4672             | + 2 6            | S                                                                 |                                                                 | 55 51.95                 | + 1.56                   | 53.51                                | S                                                                  |                                                                 | 14 46.72                 | + 1.67                   | 48.39                                | 54.88                                       |                         |                                   |                                                                                                                                                   | 18 54.900            |
| Mar.27                                                                                                                                                              | 4699             | + 44 24          | N                                                                 | <i>I. P. E.</i>                                                 | 14 3 27.67               | - 1.40                   | 26.27                                | N                                                                  | <i>I. P. W.</i>                                                 | 14 22 23.08              | - 1.81                   | 21.27                                | 18 55.00                                    |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4706             | + 25 38          | N                                                                 | <i>c</i> + 0.7<br><i>d</i>                                      | 5 16.81                  | - 1.52                   | 15.29                                | N                                                                  | <i>c</i> - 0.2<br><i>d</i>                                      | 24 12.02                 | - 1.81                   | 10.21                                | 54.92                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4716             | - 9 44           | S                                                                 | <i>b</i> + 0.3<br><i>a</i> - 11.9                               | 6 53.26                  | - 1.69                   | 51.57                                | S                                                                  | <i>b</i> - 2.9<br><i>a</i> - 2.4                                | 25 48.28                 | - 1.84                   | 46.44                                | 54.87                                       | <i>m s</i><br>18 54.892 | 1                                 | 0.030                                                                                                                                             | +                    |
|                                                                                                                                                                     | 4721             | + 13 30          | S                                                                 | <i>s</i><br><i>Q</i> - 1.60                                     | 8 40.86                  | - 1.58                   | 39.28                                | S                                                                  | <i>s</i><br><i>Q</i> - 1.75                                     | 27 35.94                 | - 1.83                   | 34.11                                | 54.83                                       |                         |                                   |                                                                                                                                                   | 18 54.892            |
|                                                                                                                                                                     | 4727             | - 5 27           | S                                                                 |                                                                 | 10 6.66                  | - 1.67                   | 4.99                                 | S                                                                  |                                                                 | 28 61.66                 | - 1.83                   | 59.83                                | 54.84                                       |                         |                                   |                                                                                                                                                   |                      |
| Mar.28                                                                                                                                                              | 4594             | + 26 17          | N                                                                 | <i>I. P. W.</i>                                                 | 13 41 29.63              | + 1.64                   | 31.27                                | N                                                                  | <i>I. P. E.</i>                                                 | 14 0 24.46               | + 1.69                   | 26.15                                | 18 54.88                                    |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4664             | + 22 16          | N                                                                 | <i>c</i> + 0.4<br><i>d</i>                                      | 53 22.25                 | + 1.62                   | 23.87                                | N                                                                  | <i>c</i> - 1.8<br><i>d</i>                                      | 12 17.13                 | + 1.69                   | 18.82                                | 54.95                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4678             | + 32 13          | N                                                                 | <i>b</i> - 0.5<br><i>a</i> - 10.3                               | 57 33.73                 | + 1.67                   | 35.40                                | N                                                                  | <i>b</i> - 1.7<br><i>a</i> - 6.3                                | 16 28.67                 | + 1.71                   | 30.38                                | 54.98                                       | <i>m s</i><br>18 54.883 | 1                                 | 0.033                                                                                                                                             | +                    |
|                                                                                                                                                                     | 4615             | + 16 22          | S                                                                 | <i>s</i><br><i>Q</i> + 1.60                                     | 44 2.50                  | + 1.60                   | 4.10                                 | S                                                                  | <i>s</i><br><i>Q</i> + 1.76                                     | 2 57.31                  | + 1.67                   | 58.98                                | 54.88                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4651             | + 1 37           | S                                                                 |                                                                 | 50 43.09                 | + 1.54                   | 44.63                                | S                                                                  |                                                                 | 9 37.83                  | + 1.63                   | 39.46                                | 54.83                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4672             | + 2 6            | S                                                                 |                                                                 | 55 54.39                 | + 1.54                   | 55.93                                | S                                                                  |                                                                 | 14 49.07                 | + 1.64                   | 50.71                                | 54.78                                       |                         |                                   |                                                                                                                                                   | 18 54.875            |
| Mar.28                                                                                                                                                              | 4694             | + 31 24          | N                                                                 | <i>I. P. W.</i>                                                 | 14 1 30.27               | - 1.53                   | 28.74                                | N                                                                  | <i>I. P. E.</i>                                                 | 14 20 25.45              | - 1.82                   | 23.63                                | 18 54.89                                    |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4699             | + 44 24          | N                                                                 | <i>c</i> + 0.4<br><i>d</i>                                      | 3 30.06                  | - 1.45                   | 28.61                                | N                                                                  | <i>c</i> - 1.8<br><i>d</i>                                      | 22 25.36                 | - 1.79                   | 23.57                                | 54.96                                       | <i>m s</i><br>18 54.903 | 1                                 | 0.033                                                                                                                                             | +                    |
|                                                                                                                                                                     | 4706             | + 25 38          | N                                                                 | <i>b</i> - 0.5<br><i>a</i> - 10.3                               | 5 19.19                  | - 1.56                   | 17.63                                | N                                                                  | <i>b</i> - 1.7<br><i>a</i> - 6.3                                | 24 14.40                 | - 1.82                   | 12.58                                | 54.95                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4716             | - 9 44           | S                                                                 | <i>s</i><br><i>Q</i> - 1.60                                     | 6 55.70                  | - 1.70                   | 54.00                                | S                                                                  | <i>s</i><br><i>Q</i> - 1.76                                     | 25 50.75                 | - 1.90                   | 48.85                                | 54.85                                       |                         |                                   |                                                                                                                                                   | 18 54.895            |
|                                                                                                                                                                     | 4721             | + 13 30          | S                                                                 |                                                                 | 8 43.22                  | - 1.61                   | 41.61                                | S                                                                  |                                                                 | 27 38.38                 | - 1.86                   | 36.52                                | 54.91                                       |                         |                                   |                                                                                                                                                   |                      |
|                                                                                                                                                                     | 4727             | - 5 27           | S                                                                 |                                                                 | 10 9.02                  | - 1.69                   | 7.33                                 | S                                                                  |                                                                 | 29 4.08                  | - 1.89                   | 2.19                                 | 54.86                                       |                         |                                   |                                                                                                                                                   |                      |

NOTE.—1<sup>d</sup> = 0<sup>h</sup>0225. Transcribing Equation *with*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

## TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                                                                                                         |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>S <sub>N</sub> - S <sub>E</sub> = - 0 <sup>h</sup> 00 <sup>m</sup> 4 <sup>s</sup><br>H <sub>N</sub> - H <sub>E</sub> = + 0 <sup>h</sup> 04 <sup>m</sup> | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                                                                                                         |                      |
| 1884                                                                                                                                                                |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                                                                                                         |                      |
| Mar. 29                                                                                                                                                             | 3964             | + 22 0      | N                                                                 | <i>I. P. W.</i>                                                 | 11 34 56.97              | + 1.68                   | 58.65                                | N                                                                   | <i>I. P. W.</i>                                                 | 11 53 51.87              | + 1.80                   | 53.67                                | 18 55.02                                    |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 3990             | + 20 52     | N                                                                 | <i>d</i>                                                        | 42 11.94                 | + 1.68                   | 13.62                                | N                                                                   | <i>d</i>                                                        | 12 1 6.81                | + 1.80                   | 8.61                                 | 54.99                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 3998             | + 35 35     | N                                                                 | <i>c</i> + 1.3<br><i>b</i> + 0.7<br><i>a</i> - 14.8             | 43 51.80                 | + 1.79                   | 53.59                                | N                                                                   | <i>c</i> + 0.8<br><i>b</i> + 1.0<br><i>a</i> + 3.3              | 2 46.82                  | + 1.79                   | 48.61                                | 55.02                                       | <i>m s</i>          | 18 55.018                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 3971             | + 5 23      | S                                                                 | <i>s</i><br><i>Q</i> + 1.60                                     | 36 23.46                 | + 1.59                   | 25.05                                | S                                                                   | <i>s</i><br><i>Q</i> + 1.76                                     | 11 55 18.22              | + 1.82                   | 20.04                                | 54.99                                       | <i>m s</i>          | 18 55.018                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 3975             | - 6 2       | S                                                                 |                                                                 | 38 11.81                 | + 1.51                   | 13.32                                | S                                                                   |                                                                 | 57 6.56                  | + 1.83                   | 8.39                                 | 55.07                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 3982             | + 7 11      | S                                                                 |                                                                 | 40 5.84                  | + 1.60                   | 7.44                                 | S                                                                   |                                                                 | 59 0.64                  | + 1.82                   | 2.46                                 | 55.02                                       |                     |                                   |                                                                                                                                                                                         |                      |
| Mar. 29                                                                                                                                                             | 4056             | + 22 44     | N                                                                 | <i>I. P. W.</i>                                                 | 11 56 2.87               | - 1.51                   | 1.36                                 | N                                                                   | <i>I. P. W.</i>                                                 | 12 14 58.08              | - 1.72                   | 56.36                                | 18 55.00                                    |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4066             | + 22 6      | N                                                                 | <i>d</i><br><i>c</i> + 1.3<br><i>b</i> + 0.7<br><i>a</i> - 14.8 | 58 35.28                 | - 1.52                   | 33.76                                | N                                                                   | <i>d</i><br><i>c</i> + 0.8<br><i>b</i> + 1.0<br><i>a</i> + 3.3  | 17 30.53                 | - 1.72                   | 28.81                                | 55.05                                       | <i>m s</i>          | 18 55.028                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4031             | + 16 18     | S                                                                 | <i>s</i><br><i>Q</i> - 1.60                                     | 49 57.74                 | - 1.55                   | 56.19                                | S                                                                   | <i>s</i><br><i>Q</i> - 1.76                                     | 8 52.90                  | - 1.71                   | 51.19                                | 55.00                                       | <i>m s</i>          | 18 55.028                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4039             | + 4 8       | S                                                                 |                                                                 | 52 32.47                 | - 1.62                   | 30.85                                | S                                                                   |                                                                 | 11 27.62                 | - 1.70                   | 25.92                                | 55.07                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4049             | + 4 18      | S                                                                 |                                                                 | 54 15.70                 | - 1.62                   | 14.08                                | S                                                                   |                                                                 | 13 10.80                 | - 1.70                   | 9.10                                 | 55.02                                       |                     |                                   |                                                                                                                                                                                         |                      |
| Mar. 29                                                                                                                                                             | 4594             | + 26 17     | N                                                                 | <i>I. P. E.</i>                                                 | 13 41 32.21              | + 1.72                   | 33.93                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 0 26.96               | + 1.79                   | 28.75                                | 18 54.82                                    |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4664             | + 22 16     | N                                                                 | <i>d</i><br><i>c</i> + 1.1<br><i>b</i> + 0.6<br><i>a</i> - 19.2 | 53 24.89                 | + 1.69                   | 26.58                                | N                                                                   | <i>d</i><br><i>c</i> + 0.8<br><i>b</i> + 1.0<br><i>a</i> + 3.3  | 12 19.69                 | + 1.80                   | 21.49                                | 54.91                                       | <i>m s</i>          | 18 54.924                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4678             | + 32 13     | N                                                                 | <i>s</i><br><i>Q</i> + 1.60                                     | 57 36.35                 | + 1.79                   | 38.14                                | N                                                                   | <i>s</i><br><i>Q</i> + 1.76                                     | 16 31.19                 | + 1.79                   | 32.98                                | 54.84                                       | <i>m s</i>          | 18 54.924                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4615             | + 16 22     | S                                                                 |                                                                 | 44 5.04                  | + 1.64                   | 6.68                                 | S                                                                   |                                                                 | 2 59.87                  | + 1.81                   | 61.68                                | 55.00                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4651             | + 1 37      | S                                                                 |                                                                 | 50 45.70                 | + 1.52                   | 47.22                                | S                                                                   |                                                                 | 9 40.45                  | + 1.82                   | 42.27                                | 55.05                                       |                     |                                   |                                                                                                                                                                                         |                      |
| Mar. 29                                                                                                                                                             | 4694             | + 31 24     | N                                                                 | <i>I. P. E.</i>                                                 | 14 1 32.79               | - 1.42                   | 31.37                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 20 27.96              | - 1.73                   | 26.23                                | 18 54.86                                    |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4699             | + 44 24     | N                                                                 | <i>d</i><br><i>c</i> + 1.1<br><i>b</i> + 0.6<br><i>a</i> - 19.2 | 3 32.60                  | - 1.27                   | 31.33                                | N                                                                   | <i>d</i><br><i>c</i> + 0.8<br><i>b</i> + 1.0<br><i>a</i> + 3.3  | 22 27.86                 | - 1.74                   | 26.12                                | 54.79                                       | <i>m s</i>          | 18 54.897                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4706             | + 25 38     | N                                                                 | <i>s</i><br><i>Q</i> - 1.60                                     | 5 21.78                  | - 1.49                   | 20.29                                | N                                                                   | <i>s</i><br><i>Q</i> - 1.76                                     | 24 16.94                 | - 1.73                   | 15.21                                | 54.92                                       | <i>m s</i>          | 18 54.897                         |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4716             | - 9 44      | S                                                                 |                                                                 | 6 58.35                  | - 1.75                   | 56.60                                | S                                                                   |                                                                 | 25 53.24                 | - 1.68                   | 51.56                                | 54.96                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4721             | + 13 30     | S                                                                 |                                                                 | 8 45.86                  | - 1.58                   | 44.28                                | S                                                                   |                                                                 | 27 40.87                 | - 1.71                   | 39.16                                | 54.88                                       |                     |                                   |                                                                                                                                                                                         |                      |
|                                                                                                                                                                     | 4727             | - 5 27      | S                                                                 |                                                                 | 10 11.65                 | - 1.73                   | 9.92                                 | S                                                                   |                                                                 | 29 6.58                  | - 1.69                   | 4.89                                 | 54.97                                       |                     |                                   |                                                                                                                                                                                         |                      |

NOTE.—1<sup>d</sup> = 0<sup>h</sup> 02.5. Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                             |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrs. for Persl. Equations<br>$S_N - S_E = -0.004$<br>$H_N - H_E = +0.046$ | $\delta L_N - \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                             |                     |
| 1884                                                                                                                                                                |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                             |                     |
| Mar.30                                                                                                                                                              | 3964             | + 22 0      | N                                                                 | <i>I. P. E.</i>                                                 | 11 34 59.29              | +1.62                    | 60.91                                | N                                                                   | <i>I. P. E.</i>                                                 | 11 53 54.13              | +1.74                    | 55.87                                | 18 54.96                                    |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 3990             | + 20 52     | N                                                                 | <i>c - 0.8</i>                                                  | 42 14.32                 | +1.62                    | 15.94                                | N                                                                   | <i>c - 0.2</i>                                                  | 12 1 9.16                | +1.74                    | 10.90                                | 54.96                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 3998             | + 35 35     | N                                                                 | <i>b + 0.1</i><br><i>a - 19.5</i>                               | 43 54.10                 | +1.76                    | 55.86                                | N                                                                   | <i>b - 0.7</i><br><i>a - 4.4</i>                                | 2 49.12                  | +1.76                    | 50.88                                | 55.02                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 3971             | + 5 23      | S                                                                 | <i>s</i><br><i>Q + 1.60</i>                                     | 36 25.75                 | +1.50                    | 27.25                                | S                                                                   | <i>s</i><br><i>Q + 1.76</i>                                     | 11 55 20.58              | +1.71                    | 22.29                                | 55.04                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 3975             | - 6 2       | S                                                                 |                                                                 | 38 14.18                 | +1.41                    | 15.59                                | S                                                                   |                                                                 | 57 8.96                  | +1.71                    | 10.67                                | 55.08                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 3982             | + 7 11      | S                                                                 |                                                                 | 40 8.14                  | +1.51                    | 9.65                                 | S                                                                   |                                                                 | 59 2.91                  | +1.72                    | 4.63                                 | 54.98                                       |                     |                                   |                                                                             |                     |
| Mar.30                                                                                                                                                              | 4018             | + 41 34     | N                                                                 | <i>I. P. E.</i>                                                 | 11 48 6.24               | -1.37                    | 4.87                                 | N                                                                   | <i>I. P. E.</i>                                                 | 12 6 61.59               | -1.74                    | 59.85                                | 18 54.98                                    |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4056             | + 22 44     | N                                                                 | <i>c - 0.8</i>                                                  | 56 5.20                  | -1.57                    | 3.63                                 | N                                                                   | <i>c - 0.2</i>                                                  | 14 60.41                 | -1.78                    | 58.63                                | 55.00                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4066             | + 22 6      | N                                                                 | <i>b + 0.1</i><br><i>a - 19.5</i>                               | 58 37.62                 | -1.58                    | 36.04                                | N                                                                   | <i>b - 0.7</i><br><i>a - 4.4</i>                                | 17 32.68                 | -1.78                    | 30.90                                | 54.86                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4031             | + 16 18     | S                                                                 | <i>s</i><br><i>Q - 1.60</i>                                     | 49 60.04                 | -1.62                    | 58.42                                | S                                                                   | <i>s</i><br><i>Q - 1.76</i>                                     | 8 55.10                  | -1.79                    | 53.31                                | 54.89                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4039             | + 4 8       | S                                                                 |                                                                 | 52 34.83                 | -1.71                    | 33.12                                | S                                                                   |                                                                 | 11 29.83                 | -1.81                    | 28.02                                | 54.90                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4049             | + 4 18      | S                                                                 |                                                                 | 54 18.07                 | -1.71                    | 16.36                                | S                                                                   |                                                                 | 13 13.12                 | -1.81                    | 11.31                                | 54.95                                       |                     |                                   |                                                                             |                     |
| Mar.30                                                                                                                                                              | 4594             | + 26 17     | N                                                                 | <i>I. P. W.</i>                                                 | 13 41 34.44              | +1.71                    | 36.15                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 0 29.35               | +1.74                    | 31.09                                | 18 54.94                                    |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4664             | + 22 16     | N                                                                 | <i>c + 0.2</i>                                                  | 53 27.11                 | +1.66                    | 28.77                                | N                                                                   | <i>c - 0.2</i>                                                  | 12 21.95                 | +1.74                    | 23.69                                | 54.92                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4678             | + 32 13     | N                                                                 | <i>b + 0.8</i><br><i>a - 17.9</i>                               | 57 38.51                 | +1.76                    | 40.27                                | N                                                                   | <i>b - 0.7</i><br><i>a - 4.4</i>                                | 16 33.52                 | +1.75                    | 35.27                                | 55.00                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4615             | + 16 22     | S                                                                 | <i>s</i><br><i>Q + 1.60</i>                                     | 44 7.29                  | +1.62                    | 8.91                                 | S                                                                   | <i>s</i><br><i>Q + 1.76</i>                                     | 3 2.15                   | +1.73                    | 3.88                                 | 54.97                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4651             | + 1 37      | S                                                                 |                                                                 | 50 47.94                 | +1.52                    | 49.46                                | S                                                                   |                                                                 | 9 42.74                  | +1.71                    | 44.45                                | 54.99                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4672             | + 2 6       | S                                                                 |                                                                 | 55 59.21                 | +1.52                    | 60.73                                | S                                                                   |                                                                 | 14 53.98                 | +1.71                    | 55.69                                | 54.96                                       |                     |                                   |                                                                             |                     |
| Mar.30                                                                                                                                                              | 4694             | + 31 24     | N                                                                 | <i>I. P. W.</i>                                                 | 14 1 34.99               | -1.45                    | 33.54                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 20 30.36              | -1.77                    | 28.59                                | 18 55.05                                    |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4699             | + 44 24     | N                                                                 | <i>c + 0.2</i>                                                  | 3 34.77                  | -1.31                    | 33.46                                | N                                                                   | <i>c - 0.2</i>                                                  | 22 30.24                 | -1.73                    | 28.51                                | 55.05                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4706             | + 25 38     | N                                                                 | <i>b + 0.8</i><br><i>a - 17.9</i>                               | 5 24.04                  | -1.51                    | 22.53                                | N                                                                   | <i>b - 0.7</i><br><i>a - 4.4</i>                                | 24 19.24                 | -1.77                    | 17.47                                | 54.94                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4716             | - 9 44      | S                                                                 | <i>s</i><br><i>Q - 1.60</i>                                     | 6 60.55                  | -1.76                    | 58.79                                | S                                                                   | <i>s</i><br><i>Q - 1.76</i>                                     | 25 55.60                 | -1.82                    | 53.78                                | 54.99                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4721             | + 13 30     | S                                                                 |                                                                 | 8 48.08                  | -1.60                    | 46.48                                | S                                                                   |                                                                 | 27 43.21                 | -1.79                    | 41.42                                | 54.94                                       |                     |                                   |                                                                             |                     |
|                                                                                                                                                                     | 4727             | - 5 27      | S                                                                 |                                                                 | 10 13.93                 | -1.73                    | 12.20                                | S                                                                   |                                                                 | 29 9.03                  | -1.81                    | 7.22                                 | 55.02                                       |                     |                                   |                                                                             |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6h 30m 41s: AND AKYAB (W) Lat. 20° 8', Long. 6h 11m 45s. |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |
|-------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|
| Astronomical Date                                                                         | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>E Clock | Corrns. for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ |
|                                                                                           | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |
| 1884                                                                                      |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |
| Mar.31                                                                                    | 8964             | + 22 0      | N                                                                 | <i>I. P. W.</i>                                                 | 11 35 0.97               | + 1.64                   | 2.61                                 | N                                                                   | <i>I. P. W.</i>                                                 | 11 53 55.83              | + 1.76                   | 57.59                                | 18 54.98                                    |                     |                                   |                                                                              |
|                                                                                           | 3990             | + 20 52     | N                                                                 | <i>c - 0.1</i><br><i>d</i>                                      | 42 15.92                 | + 1.63                   | 17.55                                | N                                                                   | <i>c + 0.1</i><br><i>d</i>                                      | 12 11 10.80              | + 1.76                   | 12.56                                | 55.01                                       |                     |                                   |                                                                              |
|                                                                                           | 8998             | + 35 35     | N                                                                 | <i>b + 0.2</i><br><i>a - 16.9</i>                               | 43 55.73                 | + 1.76                   | 57.49                                | N                                                                   | <i>b + 0.1</i><br><i>a + 0.6</i>                                | 2 50.80                  | + 1.76                   | 52.56                                | 55.07                                       |                     |                                   |                                                                              |
|                                                                                           | 8971             | + 5 23      | S                                                                 | <i>s</i><br><i>Q + 1.60</i>                                     | 36 27.43                 | + 1.53                   | 28.96                                | S                                                                   | <i>s</i><br><i>Q + 1.76</i>                                     | 11 55 22.16              | + 1.76                   | 23.92                                | 54.96                                       |                     |                                   |                                                                              |
|                                                                                           | 8975             | - 6 2       | S                                                                 |                                                                 | 38 15.86                 | + 1.45                   | 17.31                                | S                                                                   |                                                                 | 57 10.58                 | + 1.77                   | 12.35                                | 55.04                                       |                     |                                   |                                                                              |
|                                                                                           | 8982             | + 7 11      | S                                                                 |                                                                 | 40 9.83                  | + 1.54                   | 11.37                                | S                                                                   |                                                                 | 59 4.60                  | + 1.76                   | 6.36                                 | 54.99                                       |                     |                                   |                                                                              |
| Mar.31                                                                                    | 4018             | + 41 34     | N                                                                 | <i>I. P. W.</i>                                                 | 11 48 7.82               | - 1.38                   | 6.44                                 | N                                                                   | <i>I. P. W.</i>                                                 | 12 7 3.31                | - 1.77                   | 1.54                                 | 18 55.10                                    |                     |                                   |                                                                              |
|                                                                                           | 4056             | + 22 44     | N                                                                 | <i>c - 0.1</i><br><i>d</i>                                      | 56 6.88                  | - 1.56                   | 5.32                                 | N                                                                   | <i>c + 0.1</i><br><i>d</i>                                      | 15 2.08                  | - 1.76                   | 0.32                                 | 55.00                                       |                     |                                   |                                                                              |
|                                                                                           | 4031             | + 16 18     | S                                                                 | <i>b + 0.2</i><br><i>a - 16.9</i>                               | 50 1.71                  | - 1.60                   | 0.11                                 | S                                                                   | <i>b + 0.1</i><br><i>a + 0.6</i>                                | 8 56.77                  | - 1.76                   | 55.01                                | 54.90                                       |                     |                                   |                                                                              |
|                                                                                           | 4089             | + 4 8       | S                                                                 | <i>s</i><br><i>Q - 1.60</i>                                     | 52 36.48                 | - 1.68                   | 34.80                                | S                                                                   | <i>s</i><br><i>Q - 1.76</i>                                     | 11 31.56                 | - 1.76                   | 29.80                                | 55.00                                       |                     |                                   |                                                                              |
|                                                                                           | 4049             | + 4 18      | S                                                                 |                                                                 | 54 19.72                 | - 1.68                   | 18.04                                | S                                                                   |                                                                 | 13 14.83                 | - 1.76                   | 13.07                                | 55.03                                       |                     |                                   |                                                                              |
| Mar.31                                                                                    | 4694             | + 26 17     | N                                                                 | <i>I. P. E.</i>                                                 | 13 41 36.22              | + 1.71                   | 37.93                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 0 30.90               | + 1.76                   | 32.66                                | 18 54.73                                    |                     |                                   |                                                                              |
|                                                                                           | 4664             | + 22 16     | N                                                                 | <i>c + 0.5</i><br><i>d</i>                                      | 53 28.86                 | + 1.67                   | 30.53                                | N                                                                   | <i>c + 0.1</i><br><i>d</i>                                      | 12 23.61                 | + 1.76                   | 25.37                                | 54.84                                       |                     |                                   |                                                                              |
|                                                                                           | 4678             | + 32 13     | N                                                                 | <i>b + 0.6</i><br><i>a - 20.5</i>                               | 57 40.35                 | + 1.78                   | 42.13                                | N                                                                   | <i>b + 0.1</i><br><i>a + 0.6</i>                                | 16 35.17                 | + 1.76                   | 36.93                                | 54.80                                       |                     |                                   |                                                                              |
|                                                                                           | 4616             | + 16 22     | S                                                                 | <i>s</i><br><i>Q + 1.60</i>                                     | 44 9.07                  | + 1.62                   | 10.69                                | S                                                                   | <i>s</i><br><i>Q + 1.76</i>                                     | 3 3.78                   | + 1.76                   | 5.54                                 | 54.85                                       |                     |                                   |                                                                              |
|                                                                                           | 4651             | + 1 37      | S                                                                 |                                                                 | 50 49.67                 | + 1.50                   | 51.17                                | S                                                                   |                                                                 | 9 44.28                  | + 1.76                   | 46.04                                | 54.87                                       |                     |                                   |                                                                              |
|                                                                                           | 4672             | + 2 6       | S                                                                 |                                                                 | 56 0.95                  | + 1.51                   | 2.46                                 | S                                                                   |                                                                 | 14 55.62                 | + 1.76                   | 57.38                                | 54.92                                       |                     |                                   |                                                                              |
| Mar.31                                                                                    | 4604             | + 31 24     | N                                                                 | <i>I. P. E.</i>                                                 | 14 1 36.76               | - 1.43                   | 35.33                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 20 31.97              | - 1.76                   | 30.21                                | 18 54.88                                    |                     |                                   |                                                                              |
|                                                                                           | 4699             | + 44 24     | N                                                                 | <i>c + 0.5</i><br><i>d</i>                                      | 3 36.47                  | - 1.26                   | 35.21                                | N                                                                   | <i>c + 0.1</i><br><i>d</i>                                      | 22 31.93                 | - 1.77                   | 30.16                                | 54.95                                       |                     |                                   |                                                                              |
|                                                                                           | 4706             | + 25 38     | N                                                                 | <i>b + 0.6</i><br><i>a - 20.5</i>                               | 5 25.72                  | - 1.50                   | 24.22                                | N                                                                   | <i>b + 0.1</i><br><i>a + 0.6</i>                                | 24 20.94                 | - 1.76                   | 19.18                                | 54.96                                       |                     |                                   |                                                                              |
|                                                                                           | 4716             | - 9 44      | S                                                                 | <i>s</i><br><i>Q - 1.60</i>                                     | 7 2.28                   | - 1.79                   | 0.49                                 | S                                                                   | <i>s</i><br><i>Q - 1.76</i>                                     | 25 57.10                 | - 1.75                   | 55.35                                | 54.86                                       |                     |                                   |                                                                              |
|                                                                                           | 4721             | + 13 30     | S                                                                 |                                                                 | 8 49.79                  | - 1.60                   | 48.19                                | S                                                                   |                                                                 | 27 44.79                 | - 1.76                   | 43.03                                | 54.84                                       |                     |                                   |                                                                              |
|                                                                                           | 4727             | - 5 27      | S                                                                 |                                                                 | 10 15.62                 | - 1.75                   | 13.87                                | S                                                                   |                                                                 | 29 10.51                 | - 1.75                   | 8.76                                 | 54.89                                       |                     |                                   |                                                                              |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation nil, all records having been transcribed by the same person.  
\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE IX. OBSERVATIONS OF TRANSITS WITH E CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N - \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |               |             |                                  |                                                           |                         |                    |                           |                                   |                                                          |                         |                    |                           |                                       |                                     |                                |                                                                                                                                               |                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-------------|----------------------------------|-----------------------------------------------------------|-------------------------|--------------------|---------------------------|-----------------------------------|----------------------------------------------------------|-------------------------|--------------------|---------------------------|---------------------------------------|-------------------------------------|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Astronomical Date                                                                                                                                                   | STAR          |             | TRANSITS OBSERVED AT E           |                                                           |                         |                    |                           | TRANSITS OBSERVED AT W            |                                                          |                         |                    |                           | Difference of Corrected Times (W - E) |                                     | Correction for Rate of E Clock | Corrs. for Persl. Equations<br>S <sub>N</sub> - S <sub>S</sub> = - 0 <sup>.004</sup><br>H <sub>N</sub> - H <sub>S</sub> = + 0 <sup>.046</sup> | δ L <sub>N</sub> - ρ |
|                                                                                                                                                                     |               |             | By Strahan, with Telescope No. 2 |                                                           |                         |                    |                           | By Hearside, with Telescope No. 1 |                                                          |                         |                    |                           |                                       |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | B A.C. Number | Declination | Star's Aspect                    | In-strumental Position and Correction Constants           | Mean Observed Time      | Total Correction   | Seconds of Corrected Time | Star's Aspect                     | In-strumental Position and Correction Constants          | Mean Observed Time      | Total Correction   | Seconds of Corrected Time | By each Star                          | Mean of Group                       |                                |                                                                                                                                               |                      |
| 1884                                                                                                                                                                |               | ° ' "       |                                  |                                                           | <i>h m s</i>            | <i>s</i>           | <i>s</i>                  |                                   |                                                          | <i>h m s</i>            | <i>s</i>           | <i>s</i>                  | <i>m s</i>                            |                                     |                                |                                                                                                                                               |                      |
| Apr. 1                                                                                                                                                              | 3964          | + 22 0      | N                                | <i>I. P. E.</i>                                           | 11 35 2 <sup>.84</sup>  | + 1 <sup>.69</sup> | 4 <sup>.53</sup>          | N                                 | <i>I. P. E.</i>                                          | 11 53 57 <sup>.71</sup> | + 1 <sup>.67</sup> | 59 <sup>.38</sup>         | 18 54 <sup>.85</sup>                  |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 3998          | + 35 35     | N                                | <i>c</i> + 0 <sup>.8</sup><br><i>d</i>                    | 43 57 <sup>.60</sup>    | + 1 <sup>.84</sup> | 59 <sup>.44</sup>         | N                                 | <i>c</i> - 1 <sup>.5</sup><br><i>d</i>                   | 12 2 52 <sup>.81</sup>  | + 1 <sup>.62</sup> | 54 <sup>.43</sup>         | 54 <sup>.99</sup>                     |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 3971          | + 5 23      | S                                | <i>b</i> + 0 <sup>.9</sup><br><i>a</i> - 22 <sup>.0</sup> | 36 29 <sup>.32</sup>    | + 1 <sup>.55</sup> | 30 <sup>.87</sup>         | S                                 | <i>b</i> - 1 <sup>.7</sup><br><i>a</i> + 6 <sup>.6</sup> | 11 55 23 <sup>.91</sup> | + 1 <sup>.73</sup> | 25 <sup>.64</sup>         | 54 <sup>.77</sup>                     | <i>m s</i><br>18 54 <sup>.840</sup> | -                              | + 0 <sup>.030</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 3975          | - 6 2       | S                                | <i>s</i><br><i>Q</i> + 1 <sup>.60</sup>                   | 38 17 <sup>.74</sup>    | + 1 <sup>.45</sup> | 19 <sup>.19</sup>         | S                                 | <i>s</i><br><i>Q</i> + 1 <sup>.76</sup>                  | 57 12 <sup>.20</sup>    | + 1 <sup>.77</sup> | 13 <sup>.97</sup>         | 54 <sup>.78</sup>                     | <i>m s</i><br>18 54 <sup>.840</sup> | -                              | + 0 <sup>.030</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 3982          | + 7 11      | S                                |                                                           | 40 11 <sup>.74</sup>    | + 1 <sup>.56</sup> | 13 <sup>.30</sup>         | S                                 |                                                          | 59 6 <sup>.39</sup>     | + 1 <sup>.72</sup> | 8 <sup>.11</sup>          | 54 81                                 |                                     |                                | 18 54 <sup>.846</sup>                                                                                                                         |                      |
| Apr. 1                                                                                                                                                              | 4018          | + 41 34     | N                                | <i>I. P. E.</i>                                           | 11 48 9 <sup>.73</sup>  | - 1 <sup>.28</sup> | 8 <sup>.45</sup>          | N                                 | <i>I. P. E.</i>                                          | 12 7 5 <sup>.27</sup>   | - 1 <sup>.93</sup> | 3 <sup>.34</sup>          | 18 54 <sup>.89</sup>                  |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4056          | + 22 44     | N                                | <i>c</i> + 0 <sup>.8</sup><br><i>d</i>                    | 56 8 <sup>.73</sup>     | - 1 <sup>.50</sup> | 7 <sup>.23</sup>          | N                                 | <i>c</i> - 1 <sup>.5</sup><br><i>d</i>                   | 15 3 <sup>.89</sup>     | - 1 <sup>.85</sup> | 2 <sup>.04</sup>          | 54 <sup>.81</sup>                     |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4066          | + 22 6      | N                                | <i>b</i> + 0 <sup>.9</sup><br><i>a</i> - 22 <sup>.0</sup> | 58 41 <sup>.12</sup>    | - 1 <sup>.51</sup> | 39 <sup>.61</sup>         | N                                 | <i>b</i> - 1 <sup>.7</sup><br><i>a</i> + 6 <sup>.6</sup> | 17 36 <sup>.26</sup>    | - 1 <sup>.85</sup> | 34 <sup>.41</sup>         | 54 <sup>.80</sup>                     | <i>m s</i><br>18 54 <sup>.802</sup> | -                              | + 0 <sup>.025</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4031          | + 16 18     | S                                | <i>s</i><br><i>Q</i> - 1 <sup>.60</sup>                   | 50 3 <sup>.60</sup>     | - 1 <sup>.56</sup> | 2 <sup>.04</sup>          | S                                 | <i>s</i><br><i>Q</i> - 1 <sup>.76</sup>                  | 8 58 <sup>.58</sup>     | - 1 <sup>.83</sup> | 56 <sup>.75</sup>         | 54 <sup>.71</sup>                     | <i>m s</i><br>18 54 <sup>.802</sup> | -                              | + 0 <sup>.025</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4039          | + 4 8       | S                                |                                                           | 52 38 <sup>.38</sup>    | - 1 <sup>.67</sup> | 36 <sup>.71</sup>         | S                                 |                                                          | 11 33 <sup>.28</sup>    | - 1 <sup>.79</sup> | 31 <sup>.49</sup>         | 54 <sup>.78</sup>                     |                                     |                                | 18 54 <sup>.803</sup>                                                                                                                         |                      |
|                                                                                                                                                                     | 4049          | + 4 18      | S                                |                                                           | 54 21 <sup>.59</sup>    | - 1 <sup>.67</sup> | 19 <sup>.92</sup>         | S                                 |                                                          | 13 16 <sup>.53</sup>    | - 1 <sup>.79</sup> | 14 <sup>.74</sup>         | 54 <sup>.82</sup>                     |                                     |                                |                                                                                                                                               |                      |
| Apr. 1                                                                                                                                                              | 4694          | + 26 17     | N                                | <i>I. P. W.</i>                                           | 13 41 37 <sup>.95</sup> | + 1 <sup>.67</sup> | 39 <sup>.62</sup>         | N                                 | <i>I. P. E.</i>                                          | 14 0 32 <sup>.78</sup>  | + 1 <sup>.66</sup> | 34 <sup>.44</sup>         | 18 54 <sup>.82</sup>                  |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4664          | + 22 16     | N                                | <i>c</i> - 0 <sup>.6</sup><br><i>d</i>                    | 53 30 <sup>.62</sup>    | + 1 <sup>.64</sup> | 32 <sup>.26</sup>         | N                                 | <i>c</i> - 1 <sup>.5</sup><br><i>d</i>                   | 12 25 <sup>.44</sup>    | + 1 <sup>.67</sup> | 27 <sup>.11</sup>         | 54 <sup>.85</sup>                     |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4678          | + 32 13     | N                                | <i>b</i> + 0 <sup>.2</sup><br><i>a</i> - 21 <sup>.0</sup> | 57 42 <sup>.04</sup>    | + 1 <sup>.74</sup> | 43 <sup>.78</sup>         | N                                 | <i>b</i> - 1 <sup>.7</sup><br><i>a</i> + 6 <sup>.6</sup> | 16 37 <sup>.03</sup>    | + 1 <sup>.64</sup> | 38 <sup>.67</sup>         | 54 <sup>.89</sup>                     | <i>m s</i><br>18 54 <sup>.808</sup> | -                              | + 0 <sup>.025</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4615          | + 16 22     | S                                | <i>s</i><br><i>Q</i> + 1 <sup>.60</sup>                   | 44 10 <sup>.89</sup>    | + 1 <sup>.59</sup> | 12 <sup>.48</sup>         | S                                 | <i>s</i><br><i>Q</i> + 1 <sup>.76</sup>                  | 3 5 <sup>.51</sup>      | + 1 <sup>.69</sup> | 7 <sup>.20</sup>          | 54 <sup>.72</sup>                     | <i>m s</i><br>18 54 <sup>.808</sup> | -                              | + 0 <sup>.025</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4651          | + 1 37      | S                                |                                                           | 50 51 <sup>.51</sup>    | + 1 <sup>.47</sup> | 52 <sup>.98</sup>         | S                                 |                                                          | 9 46 <sup>.01</sup>     | + 1 <sup>.74</sup> | 47 <sup>.75</sup>         | 54 <sup>.77</sup>                     |                                     |                                | 18 54 <sup>.809</sup>                                                                                                                         |                      |
|                                                                                                                                                                     | 4672          | + 2 6       | S                                |                                                           | 56 2 <sup>.71</sup>     | + 1 <sup>.47</sup> | 4 <sup>.18</sup>          | S                                 |                                                          | 14 57 <sup>.24</sup>    | + 1 <sup>.74</sup> | 58 <sup>.98</sup>         | 54 <sup>.80</sup>                     |                                     |                                |                                                                                                                                               |                      |
| Apr. 1                                                                                                                                                              | 4694          | + 31 24     | N                                | <i>I. P. W.</i>                                           | 14 1 38 <sup>.51</sup>  | - 1 <sup>.47</sup> | 37 <sup>.04</sup>         | N                                 | <i>I. P. E.</i>                                          | 14 20 33 <sup>.77</sup> | - 1 <sup>.87</sup> | 31 <sup>.90</sup>         | 18 54 <sup>.86</sup>                  |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4699          | + 44 24     | N                                | <i>c</i> - 0 <sup>.6</sup><br><i>d</i>                    | 3 38 <sup>.28</sup>     | - 1 <sup>.30</sup> | 36 <sup>.98</sup>         | N                                 | <i>c</i> - 1 <sup>.5</sup><br><i>d</i>                   | 22 33 <sup>.80</sup>    | - 1 <sup>.95</sup> | 31 <sup>.85</sup>         | 54 <sup>.87</sup>                     |                                     |                                |                                                                                                                                               |                      |
|                                                                                                                                                                     | 4716          | - 9 44      | S                                | <i>b</i> + 0 <sup>.2</sup><br><i>a</i> - 21 <sup>.0</sup> | 7 4 <sup>.11</sup>      | - 1 <sup>.82</sup> | 2 <sup>.29</sup>          | S                                 | <i>b</i> - 1 <sup>.7</sup><br><i>a</i> + 6 <sup>.6</sup> | 25 58 <sup>.90</sup>    | - 1 <sup>.74</sup> | 57 <sup>.16</sup>         | 54 <sup>.87</sup>                     | <i>m s</i><br>18 54 <sup>.866</sup> | -                              | + 0 <sup>.030</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4721          | + 13 30     | S                                | <i>s</i><br><i>Q</i> - 1 <sup>.60</sup>                   | 8 51 <sup>.61</sup>     | - 1 <sup>.64</sup> | 49 <sup>.97</sup>         | S                                 | <i>s</i><br><i>Q</i> - 1 <sup>.76</sup>                  | 27 46 <sup>.66</sup>    | - 1 <sup>.81</sup> | 44 <sup>.85</sup>         | 54 <sup>.88</sup>                     | <i>m s</i><br>18 54 <sup>.866</sup> | -                              | + 0 <sup>.030</sup>                                                                                                                           |                      |
|                                                                                                                                                                     | 4727          | - 5 27      | S                                |                                                           | 10 17 <sup>.45</sup>    | - 1 <sup>.79</sup> | 15 <sup>.66</sup>         | S                                 |                                                          | 29 12 <sup>.27</sup>    | - 1 <sup>.76</sup> | 10 <sup>.51</sup>         | 54 <sup>.85</sup>                     |                                     |                                | 18 54 <sup>.872</sup>                                                                                                                         |                      |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation *nH*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

**TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION**  
**OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\***

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |                  |                                                                   |                                                                                               |                          |                          |                                      |                                                                     |                                                                                               |                          |                          |                                      |                                             |                     |                                   |                                                                              |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                                               |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                                               |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ | $\delta L_N + \rho$ |
|                                                                                                                                                                     | B A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                               | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants                               | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |                     |
| 1884                                                                                                                                                                |                  |                  |                                                                   |                                                                                               | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                                               | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |                     |
| Mar.26                                                                                                                                                              | 4223             | + 25 12          | N                                                                 | <i>I. P. E.</i>                                                                               | 12 6 17.87               | +1.57                    | 19.44                                | N                                                                   | <i>I. P. E.</i>                                                                               | 12 25 12.62              | +1.80                    | 14.42                                | 18 54.98                                    |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4240             | + 23 16          | N                                                                 | <i>c - 0.2</i><br><i>d</i>                                                                    | 10 9.14                  | +1.57                    | 10.71                                | N                                                                   | <i>c - 0.6</i><br><i>d</i>                                                                    | 29 3.85                  | +1.80                    | 5.65                                 | 54.94                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4260             | + 21 42          | N                                                                 | <i>b - 1.6</i><br><i>a - 0.2</i>                                                              | 14 25.88                 | +1.57                    | 27.45                                | N                                                                   | <i>b + 1.7</i><br><i>a - 1.2</i>                                                              | 33 20.71                 | +1.80                    | 22.51                                | 55.06                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4228             | + 10 56          | S                                                                 | <i>s</i><br><i>Q + 1.61</i>                                                                   | 8 15.55                  | +1.57                    | 17.12                                | S                                                                   | <i>s</i><br><i>Q + 1.77</i>                                                                   | 27 10.24                 | +1.80                    | 12.04                                | 54.92                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4267             | + 11 4           | S                                                                 |                                                                                               | 16 48.60                 | +1.57                    | 50.17                                | S                                                                   |                                                                                               | 35 43.34                 | +1.80                    | 45.14                                | 54.97                                       |                     |                                   |                                                                              |                     |
| Mar.26                                                                                                                                                              | 4304             | + 28 11          | N                                                                 | <i>I. P. E.</i>                                                                               | 12 24 46.35              | -1.66                    | 44.69                                | N                                                                   | <i>I. P. E.</i>                                                                               | 12 43 41.43              | -1.75                    | 39.68                                | 18 54.99                                    |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4315             | + 28 11          | N                                                                 | <i>c - 0.2</i><br><i>d</i>                                                                    | 27 10.94                 | -1.66                    | 9.28                                 | N                                                                   | <i>c - 0.6</i><br><i>d</i>                                                                    | 46 6.00                  | -1.75                    | 4.25                                 | 54.97                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4328             | + 21 53          | N                                                                 | <i>b - 1.6</i><br><i>a - 0.2</i>                                                              | 28 43.12                 | -1.65                    | 41.47                                | N                                                                   | <i>b + 1.7</i><br><i>a - 1.2</i>                                                              | 47 38.18                 | -1.74                    | 36.44                                | 54.97                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4286             | + 8 18           | S                                                                 | <i>s</i><br><i>Q - 1.61</i>                                                                   | 20 53.61                 | -1.65                    | 51.96                                | S                                                                   | <i>s</i><br><i>Q - 1.77</i>                                                                   | 39 48.60                 | -1.75                    | 46.85                                | 54.89                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4292             | + 12 36          | S                                                                 |                                                                                               | 22 31.38                 | -1.65                    | 29.73                                | S                                                                   |                                                                                               | 41 26.41                 | -1.74                    | 24.67                                | 54.94                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4340             | + 4 2            | S                                                                 |                                                                                               | 30 53.79                 | -1.65                    | 52.14                                | S                                                                   |                                                                                               | 49 48.77                 | -1.75                    | 47.02                                | 54.88                                       |                     |                                   |                                                                              |                     |
| Mar.26                                                                                                                                                              | 4969             | + 27 24          | N                                                                 | <i>I. P. W.</i>                                                                               | 14 40 36.01              | -1.71                    | 34.30                                | N                                                                   | <i>I. P. E.</i>                                                                               | 14 59 31.19              | -1.75                    | 29.44                                | 18 55.14                                    |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     |                  |                  |                                                                   | <i>c - 0.6</i><br><i>d</i><br><i>b - 3.2</i><br><i>a - 0.9</i><br><i>s</i><br><i>Q - 1.61</i> |                          |                          |                                      |                                                                     | <i>c - 0.6</i><br><i>d</i><br><i>b + 1.7</i><br><i>a - 1.2</i><br><i>s</i><br><i>Q - 1.77</i> |                          |                          |                                      |                                             |                     |                                   |                                                                              |                     |
| Mar.27                                                                                                                                                              | 4223             | + 25 12          | N                                                                 | <i>I. P. W.</i>                                                                               | 12 6 16.89               | +1.66                    | 18.55                                | N                                                                   | <i>I. P. W.</i>                                                                               | 12 25 11.91              | +1.69                    | 13.60                                | 18 55.05                                    |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4240             | + 23 16          | N                                                                 | <i>c + 1.3</i><br><i>d</i>                                                                    | 10 8.13                  | +1.65                    | 9.78                                 | N                                                                   | <i>c - 0.2</i><br><i>d</i>                                                                    | 29 3.17                  | +1.68                    | 4.85                                 | 55.07                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4260             | + 21 42          | N                                                                 | <i>b + 0.1</i><br><i>a - 7.6</i>                                                              | 14 24.92                 | +1.65                    | 26.57                                | N                                                                   | <i>b - 2.9</i><br><i>a - 2.4</i>                                                              | 33 19.95                 | +1.68                    | 21.63                                | 55.06                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4228             | + 10 56          | S                                                                 | <i>s</i><br><i>Q + 1.60</i>                                                                   | 8 14.58                  | +1.61                    | 16.19                                | S                                                                   | <i>s</i><br><i>Q + 1.75</i>                                                                   | 27 9.55                  | +1.67                    | 11.22                                | 55.03                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4250             | + 9 16           | S                                                                 |                                                                                               | 12 19.25                 | +1.61                    | 20.86                                | S                                                                   |                                                                                               | 31 14.16                 | +1.68                    | 15.84                                | 54.98                                       |                     |                                   |                                                                              |                     |
|                                                                                                                                                                     | 4267             | + 11 4           | S                                                                 |                                                                                               | 16 47.65                 | +1.61                    | 49.26                                | S                                                                   |                                                                                               | 35 42.59                 | +1.67                    | 44.26                                | 55.00                                       |                     |                                   |                                                                              |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *iii*, all records having been transcribed by the same person.

\*  $\rho$  is the retardation of an electric signal between the stations. † Excluded from the final results.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> : AND AKYAB (W) Lat. 20° 5', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |             |                                                                  |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|------------------------------------------------------------------------------|------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ | $\delta L_N + f$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                    | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                              |                  |
|                                                                                                                                                                     |                  |             |                                                                  |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                              |                  |
| 1884                                                                                                                                                                |                  | °           |                                                                  |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                              |                  |
| Mar. 27                                                                                                                                                             | 4304             | + 28 11     | N                                                                | <i>I. P. W.</i>                                                 | 12 24 45.35              | -1.53                    | 43.82                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 43 40.71              | -1.82                    | 38.89                                | 18 55.07                                    |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4315             | + 28 11     | N                                                                | <i>d</i><br><i>c + 1.3</i>                                      | 27 9.92                  | -1.53                    | 8.39                                 | N                                                                   | <i>d</i><br><i>c - 0.2</i>                                      | 46 5.24                  | -1.82                    | 3.42                                 | 55.03                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4328             | + 21 53     | N                                                                | <i>b + 0.1</i><br><i>a - 7.6</i>                                | 28 42.15                 | -1.55                    | 40.60                                | N                                                                   | <i>b - 2.9</i><br><i>a - 2.4</i>                                | 47 37.47                 | -1.82                    | 35.65                                | 55.05                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4286             | + 8 18      | S                                                                | <i>s</i><br><i>Q - 1.60</i>                                     | 20 52.69                 | -1.60                    | 51.09                                | S                                                                   | <i>s</i><br><i>Q - 1.75</i>                                     | 39 47.91                 | -1.82                    | 46.09                                | 55.00                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4292             | + 12 36     | S                                                                |                                                                 | 22 30.48                 | -1.58                    | 28.90                                | S                                                                   |                                                                 | 41 25.68                 | -1.83                    | 23.85                                | 54.95                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4340             | + 4 2       | S                                                                |                                                                 | 30 52.93                 | -1.61                    | 51.32                                | S                                                                   |                                                                 | 49 48.09                 | -1.83                    | 46.26                                | 54.94                                       |                     |                                   |                                                                              |                  |
| Mar. 27                                                                                                                                                             | 4864             | + 27 1      | N                                                                | <i>I. P. E.</i>                                                 | 14 19 23.07              | +1.68                    | 24.75                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 38 18.04              | +1.68                    | 19.72                                | 18 54.97                                    |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4876             | + 27 34     | N                                                                | <i>d</i><br><i>c + 0.7</i>                                      | 20 58.86                 | +1.69                    | 60.55                                | N                                                                   | <i>d</i><br><i>c - 0.2</i>                                      | 39 53.78                 | +1.68                    | 55.46                                | 54.91                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4897             | + 38 17     | N                                                                | <i>b + 0.3</i><br><i>a - 11.9</i>                               | 25 36.95                 | +1.76                    | 38.71                                | N                                                                   | <i>b - 2.9</i><br><i>a - 2.4</i>                                | 44 31.96                 | +1.68                    | 33.64                                | 54.93                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4847             | + 16 55     | S                                                                | <i>s</i><br><i>Q + 1.60</i>                                     | 16 20.23                 | +1.63                    | 21.86                                | S                                                                   | <i>s</i><br><i>Q + 1.75</i>                                     | 35 15.08                 | +1.68                    | 16.76                                | 54.90                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4855             | - 5 9       | S                                                                |                                                                 | 18 0.89                  | +1.53                    | 2.42                                 | S                                                                   |                                                                 | 36 55.72                 | +1.67                    | 57.39                                | 54.91                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4886             | + 2 31      | S                                                                |                                                                 | 22 37.26                 | +1.57                    | 38.83                                | S                                                                   |                                                                 | 41 32.06                 | +1.67                    | 33.73                                | 54.90                                       |                     |                                   |                                                                              |                  |
| Mar. 27                                                                                                                                                             | 4934             | + 41 36     | N                                                                | <i>I. P. E.</i>                                                 | 14 32 43.99              | -1.42                    | 42.57                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 51 39.36              | -1.81                    | 37.55                                | 18 54.98                                    |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4958             | + 40 51     | N                                                                | <i>d</i><br><i>c + 0.7</i>                                      | 38 41.19                 | -1.42                    | 39.77                                | N                                                                   | <i>d</i><br><i>c - 0.2</i>                                      | 57 36.49                 | -1.81                    | 34.68                                | 54.91                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4969             | + 27 24     | N                                                                | <i>b + 0.3</i><br><i>a - 11.9</i>                               | 40 35.20                 | -1.51                    | 33.69                                | N                                                                   | <i>b - 2.9</i><br><i>a - 2.4</i>                                | 59 30.45                 | -1.82                    | 28.63                                | 54.94                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4926             | + 14 55     | S                                                                | <i>s</i><br><i>Q - 1.60</i>                                     | 31 51.61                 | -1.58                    | 50.03                                | S                                                                   | <i>s</i><br><i>Q - 1.75</i>                                     | 50 46.76                 | -1.83                    | 44.93                                | 54.90                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4939             | - 8 3       | S                                                                |                                                                 | 35 53.76                 | -1.68                    | 52.08                                | S                                                                   |                                                                 | 54 48.79                 | -1.84                    | 46.95                                | 54.87                                       |                     |                                   |                                                                              |                  |
| Mar. 28                                                                                                                                                             | 4223             | + 25 12     | N                                                                | <i>I. P. E.</i>                                                 | 12 6 16.17               | +1.70                    | 17.87                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 25 10.98              | +1.69                    | 12.67                                | 18 54.80                                    |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4240             | + 23 16     | N                                                                | <i>d</i><br><i>c + 0.4</i>                                      | 10 7.40                  | +1.68                    | 9.08                                 | N                                                                   | <i>d</i><br><i>c - 1.8</i>                                      | 29 2.28                  | +1.69                    | 3.97                                 | 54.89                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4260             | + 21 42     | N                                                                | <i>b + 1.3</i><br><i>a - 15.5</i>                               | 14 24.17                 | +1.67                    | 25.84                                | N                                                                   | <i>b - 1.7</i><br><i>a - 6.3</i>                                | 33 18.98                 | +1.68                    | 20.66                                | 54.82                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4228             | + 10 56     | S                                                                | <i>s</i><br><i>Q + 1.60</i>                                     | 8 13.93                  | +1.61                    | 15.54                                | S                                                                   | <i>s</i><br><i>Q + 1.76</i>                                     | 27 8.63                  | +1.66                    | 10.29                                | 54.75                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4250             | + 9 26      | S                                                                |                                                                 | 12 18.56                 | +1.60                    | 20.16                                | S                                                                   |                                                                 | 31 13.26                 | +1.65                    | 14.91                                | 54.75                                       |                     |                                   |                                                                              |                  |
|                                                                                                                                                                     | 4267             | + 11 4      | S                                                                |                                                                 | 16 46.98                 | +1.61                    | 48.59                                | S                                                                   |                                                                 | 35 41.78                 | +1.66                    | 43.44                                | 54.85                                       |                     |                                   |                                                                              |                  |

NOTE.—1<sup>d</sup> = 0.0225. Transcribing Equation  $\pi$ 12, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.



TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

| MOULMEIN (R) Lat. $16^{\circ} 30'$ , Long. $6^{\text{h}} 30^{\text{m}} 41^{\text{s}}$ : AND AKYAB (W) Lat. $20^{\circ} 8'$ , Long. $6^{\text{h}} 11^{\text{m}} 45^{\text{s}}$ . |              |             |                                  |                                                 |                    |                  |                           |                                    |                                                 |                    |                  |                           |                                       |                         |                                |                                                                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-------------|----------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------|-------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|-------------------------|--------------------------------|----------------------------------------------------------------------------|
| Astronomical Date                                                                                                                                                               | STAR         |             | TRANSITS OBSERVED AT E           |                                                 |                    |                  |                           | TRANSITS OBSERVED AT W             |                                                 |                    |                  |                           | Difference of Corrected Times (W - E) |                         | Correction for Rate of W Clock | Corrs for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ |
|                                                                                                                                                                                 |              |             | By Strahan, with Telescope No. 2 |                                                 |                    |                  |                           | By Heuricide, with Telescope No. 1 |                                                 |                    |                  |                           | By each Star                          | Mean of Group           |                                |                                                                            |
|                                                                                                                                                                                 | B.A.C Number | Declination | Star's Aspect                    | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                      | In-strumental Position and Correction Constants | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |                         |                                |                                                                            |
| 1884                                                                                                                                                                            |              |             |                                  |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                    |                                                 | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |                         |                                |                                                                            |
| Mar. 28                                                                                                                                                                         | 4304         | + 28 11     | N                                | <i>I. P. E.</i>                                 | 12 24 44.57        | -1.48            | 43.09                     | N                                  | <i>I. P. E.</i>                                 | 12 43 39 82        | -1.83            | 37.99                     | 18 54.90                              |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4315         | + 28 11     | N                                | <i>c + 0.4</i><br><i>d</i>                      | 27 9.16            | -1.48            | 7.68                      | N                                  | <i>c - 1.8</i><br><i>d</i>                      | 46 4.37            | -1.83            | 2.54                      | 54.86                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4328         | + 21 53     | N                                | <i>b + 1.3</i><br><i>a - 15.5</i>               | 28 41.33           | -1.52            | 39.81                     | N                                  | <i>b - 1.7</i><br><i>a - 6.3</i>                | 47 36.55           | -1.83            | 34.72                     | 54.91                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4286         | + 8 18      | S                                | <i>s</i>                                        | 20 51.92           | -1.61            | 50.31                     | S                                  | <i>s</i>                                        | 39 47.05           | -1.87            | 45.18                     | 54.87                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4292         | + 12 36     | S                                | <i>Q - 1.60</i>                                 | 22 20.75           | -1.58            | 28.17                     | S                                  | <i>Q - 1.76</i>                                 | 41 24.83           | -1.86            | 22.97                     | 54.80                                 | <i>m s</i><br>18 54.853 | + 0.011                        | + 0.025                                                                    |
|                                                                                                                                                                                 | 4340         | + 4 2       | S                                |                                                 | 30 52.18           | -1.64            | 50.54                     | S                                  |                                                 | 49 47.20           | -1.88            | 45.32                     | 54.78                                 |                         |                                | 18 54.889                                                                  |
| Mar. 28                                                                                                                                                                         | 4864         | + 27 1      | N                                | <i>I. P. W.</i>                                 | 14 19 22.24        | +1.65            | 23.89                     | N                                  | <i>I. P. E.</i>                                 | 14 38 17.17        | +1.69            | 18.86                     | 18 54.97                              |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4876         | + 27 34     | N                                | <i>c + 0.4</i><br><i>d</i>                      | 20 58.01           | +1.65            | 59.66                     | N                                  | <i>c - 1.8</i><br><i>d</i>                      | 39 52.85           | +1.69            | 54.54                     | 54.88                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4897         | + 38 17     | N                                | <i>b - 0.5</i><br><i>a - 10.3</i>               | 25 36.11           | +1.71            | 37.82                     | N                                  | <i>b - 1.7</i><br><i>a - 6.3</i>                | 44 31.12           | +1.72            | 32.84                     | 55.02                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4847         | + 16 55     | S                                | <i>s</i>                                        | 16 19.41           | +1.60            | 21.01                     | S                                  | <i>s</i>                                        | 35 14.23           | +1.67            | 15.90                     | 54.89                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4855         | - 5 9       | S                                | <i>Q + 1.60</i>                                 | 18 0.07            | +1.51            | 1.58                      | S                                  | <i>Q + 1.76</i>                                 | 36 54.83           | +1.63            | 56.46                     | 54.88                                 | <i>m s</i><br>18 54.933 | + 0.011                        | + 0.025                                                                    |
|                                                                                                                                                                                 | 4886         | + 2 31      | S                                |                                                 | 22 36.45           | +1.54            | 37.99                     | S                                  |                                                 | 41 31.31           | +1.64            | 32.95                     | 54.96                                 |                         |                                | 18 54.969                                                                  |
| Mar. 28                                                                                                                                                                         | 4934         | + 41 36     | N                                | <i>I. P. W.</i>                                 | 14 32 43.16        | -1.47            | 41.69                     | N                                  | <i>I. P. E.</i>                                 | 14 51 38.42        | -1.79            | 36.63                     | 18 54.94                              |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4958         | + 40 51     | N                                | <i>c + 0.4</i><br><i>d</i>                      | 38 40.29           | -1.47            | 38.82                     | N                                  | <i>c - 1.8</i><br><i>d</i>                      | 57 35.60           | -1.79            | 33.81                     | 54.99                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4969         | + 27 24     | N                                | <i>b - 0.5</i><br><i>a - 10.3</i>               | 40 34.31           | -1.55            | 32.76                     | N                                  | <i>b - 1.7</i><br><i>a - 6.3</i>                | 59 29.61           | -1.83            | 27.78                     | 55.02                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4926         | + 14 55     | S                                | <i>s</i>                                        | 31 50.75           | -1.61            | 49.14                     | S                                  | <i>s</i>                                        | 50 45.92           | -1.85            | 44.07                     | 54.93                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4939         | - 8 3       | S                                | <i>Q - 1.60</i>                                 | 35 52.93           | -1.70            | 51.23                     | S                                  | <i>Q - 1.76</i>                                 | 54 47.92           | -1.90            | 46.02                     | 54.79                                 | <i>m s</i><br>18 54.927 | + 0.011                        | + 0.025                                                                    |
|                                                                                                                                                                                 | 4945         | - 7 7       | S                                |                                                 | 37 4.53            | -1.69            | 2.84                      | S                                  |                                                 | 55 59.63           | -1.90            | 57.73                     | 54.89                                 |                         |                                | 18 54.963                                                                  |
| Mar. 29                                                                                                                                                                         | 4223         | + 25 12     | N                                | <i>I. P. W.</i>                                 | 12 6 15.17         | +1.70            | 16.87                     | N                                  | <i>I. P. W.</i>                                 | 12 25 10.11        | +1.79            | 11.90                     | 18 55.03                              |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4210         | + 23 16     | N                                | <i>c + 1.3</i><br><i>d</i>                      | 10 6.44            | +1.69            | 8.13                      | N                                  | <i>c + 0.8</i><br><i>d</i>                      | 29 1.36            | +1.80            | 3.16                      | 55.03                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4200         | + 21 42     | N                                | <i>b + 0.7</i><br><i>a - 14.8</i>               | 14 23.22           | +1.68            | 24.90                     | N                                  | <i>b + 1.0</i><br><i>a + 3.3</i>                | 33 18.22           | +1.80            | 20.02                     | 55.12                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4228         | + 10 56     | S                                | <i>s</i>                                        | 8 12.93            | +1.62            | 14.55                     | S                                  | <i>s</i>                                        | 27 7.82            | +1.81            | 9.63                      | 55.08                                 |                         |                                |                                                                            |
|                                                                                                                                                                                 | 4250         | + 9 26      | S                                | <i>Q + 1.60</i>                                 | 12 17.60           | +1.61            | 19.21                     | S                                  | <i>Q + 1.76</i>                                 | 31 12.46           | +1.81            | 14.27                     | 55.06                                 | <i>m s</i><br>18 55.077 | + 0.011                        | + 0.025                                                                    |
|                                                                                                                                                                                 | 4267         | + 11 4      | S                                |                                                 | 16 46.02           | +1.62            | 47.64                     | S                                  |                                                 | 35 40.97           | +1.81            | 42.78                     | 55.14                                 |                         |                                | 18 55.113                                                                  |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ \*

| MOULMEIN (E) Lat. 16° 30', Long. 6 <sup>h</sup> 30 <sup>m</sup> 41 <sup>s</sup> ; AND AKYAB (W) Lat. 20° 8', Long. 6 <sup>h</sup> 11 <sup>m</sup> 45 <sup>s</sup> . |                  |             |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                                                    |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                                                                   | STAR             |             | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrns. for Persl. Equations<br>$S_N - S_S = -0^{\text{s}}.004$<br>$H_N - H_S = +0^{\text{s}}.046$ | $\delta L_N + \rho$ |
|                                                                                                                                                                     | B.A.C.<br>Number | Declination | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                                                    |                     |
| 1884                                                                                                                                                                |                  | ° ' "       |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                                                    |                     |
| Mar.29                                                                                                                                                              | 4304             | + 28 11     | N                                                                 | <i>I. P. W.</i>                                                 | 12 24 43.62              | -1.47                    | 42.15                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 43 38.93              | -1.72                    | 37.21                                | 18 55.06                                    |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4315             | + 28 11     | N                                                                 | <i>d</i>                                                        | 27 8.18                  | -1.47                    | 6.71                                 | N                                                                   | <i>d</i>                                                        | 46 3.55                  | -1.72                    | 1.83                                 | 55.12                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4328             | + 21 53     | N                                                                 | <i>c + 1.3</i><br><i>b + 0.7</i><br><i>a - 14.8</i>             | 28 40.41                 | -1.52                    | 38.89                                | N                                                                   | <i>c + 0.8</i><br><i>b + 1.0</i><br><i>a + 3.3</i>              | 47 35.74                 | -1.72                    | 34.02                                | 55.13                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4286             | + 8 18      | S                                                                 | <i>s</i>                                                        | 20 50.96                 | -1.60                    | 49.36                                | S                                                                   | <i>s</i>                                                        | 39 46.08                 | -1.70                    | 44.38                                | 55.02                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4202             | + 12 36     | S                                                                 | <i>Q - 1.60</i>                                                 | 22 28.79                 | -1.57                    | 27.22                                | S                                                                   | <i>Q - 1.76</i>                                                 | 41 23.95                 | -1.71                    | 22.24                                | 55.02                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4340             | + 4 2       | S                                                                 |                                                                 | 30 51.23                 | -1.62                    | 49.61                                | S                                                                   |                                                                 | 49 46.22                 | -1.70                    | 44.52                                | 54.91                                       |                     |                                   |                                                                                                    |                     |
| Mar.29                                                                                                                                                              | 4864             | + 27 1      | N                                                                 | <i>I. P. E.</i>                                                 | 14 19 21.38              | +1.73                    | 23.11                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 38 16.31              | +1.80                    | 18.11                                | 18 55.00                                    |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4876             | + 27 34     | N                                                                 | <i>d</i>                                                        | 20 57.13                 | +1.73                    | 58.86                                | N                                                                   | <i>d</i>                                                        | 39 52.08                 | +1.80                    | 53.88                                | 55.02                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4897             | + 38 17     | N                                                                 | <i>c + 1.1</i><br><i>b + 0.6</i><br><i>a - 19.2</i>             | 25 35.23                 | +1.86                    | 37.09                                | N                                                                   | <i>c + 0.8</i><br><i>b + 1.0</i><br><i>a + 3.3</i>              | 44 30.17                 | +1.78                    | 31.95                                | 54.86                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4847             | + 16 55     | S                                                                 | <i>s</i>                                                        | 16 18.52                 | +1.64                    | 20.16                                | S                                                                   | <i>s</i>                                                        | 35 13.33                 | +1.80                    | 15.13                                | 54.97                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4855             | - 5 9       | S                                                                 | <i>Q + 1.60</i>                                                 | 17 59.34                 | +1.47                    | 60.81                                | S                                                                   | <i>Q + 1.76</i>                                                 | 36 53.90                 | +1.83                    | 55.73                                | 54.92                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4886             | + 2 31      | S                                                                 |                                                                 | 22 35.71                 | +1.53                    | 37.24                                | S                                                                   |                                                                 | 41 30.33                 | +1.82                    | 32.15                                | 54.91                                       |                     |                                   |                                                                                                    |                     |
| Mar.29                                                                                                                                                              | 4934             | + 41 36     | N                                                                 | <i>I. P. E.</i>                                                 | 14 32 42.20              | -1.31                    | 40.89                                | N                                                                   | <i>I. P. W.</i>                                                 | 14 51 37.65              | -1.75                    | 35.90                                | 18 55.01                                    |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4058             | + 40 51     | N                                                                 | <i>d</i>                                                        | 38 39.44                 | -1.31                    | 38.13                                | N                                                                   | <i>d</i>                                                        | 57 34.86                 | -1.74                    | 33.12                                | 54.99                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4069             | + 27 24     | N                                                                 | <i>c + 1.1</i><br><i>b + 0.6</i><br><i>a - 19.2</i>             | 40 33.54                 | -1.47                    | 32.07                                | N                                                                   | <i>c + 0.8</i><br><i>b + 1.0</i><br><i>a + 3.3</i>              | 59 28.79                 | -1.72                    | 27.07                                | 55.00                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4026             | + 14 55     | S                                                                 | <i>s</i>                                                        | 31 49.93                 | -1.57                    | 48.36                                | S                                                                   | <i>s</i>                                                        | 50 45.02                 | -1.71                    | 43.31                                | 54.95                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4939             | - 8 3       | S                                                                 | <i>Q - 1.60</i>                                                 | 35 52.12                 | -1.75                    | 50.37                                | S                                                                   | <i>Q - 1.76</i>                                                 | 54 47.12                 | -1.68                    | 45.44                                | 55.07                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4045             | - 7 7       | S                                                                 |                                                                 | 37 3.78                  | -1.74                    | 2.04                                 | S                                                                   |                                                                 | 55 58.77                 | -1.69                    | 57.08                                | 55.04                                       |                     |                                   |                                                                                                    |                     |
| Mar.30                                                                                                                                                              | 4210             | + 23 16     | N                                                                 | <i>I. P. E.</i>                                                 | 12 10 5.73               | +1.64                    | 7.37                                 | N                                                                   | <i>I. P. E.</i>                                                 | 12 29 0.56               | +1.75                    | 2.31                                 | 18 54.94                                    |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4260             | + 21 42     | N                                                                 | <i>d</i>                                                        | 14 22.55                 | +1.62                    | 24.17                                | N                                                                   | <i>d</i>                                                        | 33 17.37                 | +1.74                    | 19.11                                | 54.94                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4228             | + 10 56     | S                                                                 | <i>c - 0.8</i><br><i>b + 0.1</i><br><i>a - 19.5</i>             | 8 12.16                  | +1.54                    | 13.70                                | S                                                                   | <i>c - 0.2</i><br><i>b - 0.7</i><br><i>a - 4.4</i>              | 27 7.08                  | +1.72                    | 8.80                                 | 55.10                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4250             | + 9 26      | S                                                                 | <i>s</i>                                                        | 12 17.00                 | +1.53                    | 18.53                                | S                                                                   | <i>s</i>                                                        | 31 11.68                 | +1.72                    | 13.40                                | 54.87                                       |                     |                                   |                                                                                                    |                     |
|                                                                                                                                                                     | 4267             | + 11 4      | S                                                                 | <i>Q + 1.60</i>                                                 | 16 45.33                 | +1.54                    | 46.87                                | S                                                                   | <i>Q + 1.76</i>                                                 | 35 40.05                 | +1.72                    | 41.77                                | 54.90                                       |                     |                                   |                                                                                                    |                     |

NOTE.— $1^{\text{d}} = 0^{\text{s}}.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. $16^\circ 30'$ , Long. $6^h 30^m 41^s$ ; AND AKYAB (W) Lat. $20^\circ 8'$ , Long. $6^h 11^m 45^s$ . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                            |
|-----------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|----------------------------------------------------------------------------|
| Astronomical Date                                                                                                     | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviside, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ |
|                                                                                                                       | B A C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                            |
| 1884                                                                                                                  |                  | ° ' "            |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                            |
| Mar. 30                                                                                                               | 4304             | + 28 11          | N                                                                 | <i>I. P. E.</i>                                                 | 12 24 42.95              | -1.52                    | 41.43                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 43 38.17              | -1.77                    | 36.40                                | 18 54.97                                    |                     |                                   |                                                                            |
|                                                                                                                       | 4315             | + 28 11          | N                                                                 | <i>d</i><br>$c = 0.8$                                           | 27 7.48                  | -1.52                    | 5.96                                 | N                                                                   | <i>d</i><br>$c = 0.2$                                           | 46 2.66                  | -1.77                    | 0.89                                 | 54.93                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4328             | + 21 53          | N                                                                 | $b = 0.1$<br>$a = 19.5$                                         | 28 39.75                 | -1.58                    | 38.17                                | N                                                                   | $b = 0.7$<br>$a = 4.4$                                          | 47 34.90                 | -1.78                    | 33.12                                | 54.95                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4286             | + 8 18           | S                                                                 | <i>s</i><br>$Q = 1.60$                                          | 20 50.31                 | -1.68                    | 48.63                                | S                                                                   | <i>s</i><br>$Q = 1.76$                                          | 39 45.40                 | -1.80                    | 43.60                                | 54.97                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4292             | + 12 36          | S                                                                 |                                                                 | 22 28.06                 | -1.65                    | 26.41                                | S                                                                   |                                                                 | 41 23.21                 | -1.79                    | 21.42                                | 55.01                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4340             | + 4 2            | S                                                                 |                                                                 | 30 50.56                 | -1.72                    | 48.84                                | S                                                                   |                                                                 | 49 45.52                 | -1.81                    | 43.71                                | 54.87                                       |                     |                                   |                                                                            |
| Mar. 30                                                                                                               | 4864             | + 27 1           | N                                                                 | <i>I. P. W.</i>                                                 | 14 19 20.53              | +1.71                    | 22.24                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 38 15.58              | +1.74                    | 17.32                                | 18 55.08                                    |                     |                                   |                                                                            |
|                                                                                                                       | 4876             | + 27 34          | N                                                                 | <i>d</i><br>$c = 0.2$                                           | 20 56.31                 | +1.72                    | 58.03                                | N                                                                   | <i>d</i><br>$c = 0.2$                                           | 39 51.24                 | +1.74                    | 52.98                                | 54.95                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4897             | + 38 17          | N                                                                 | $b = 0.8$<br>$a = 17.9$                                         | 25 34.37                 | +1.82                    | 36.19                                | N                                                                   | $b = 0.7$<br>$a = 4.4$                                          | 44 29.48                 | +1.77                    | 31.25                                | 55.06                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4847             | + 16 55          | S                                                                 | <i>s</i><br>$Q = 1.60$                                          | 16 17.77                 | +1.62                    | 19.39                                | S                                                                   | <i>s</i><br>$Q = 1.76$                                          | 35 12.51                 | +1.73                    | 14.24                                | 54.85                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4855             | - 5 9            | S                                                                 |                                                                 | 17 58.46                 | +1.47                    | 59.93                                | S                                                                   |                                                                 | 36 53.26                 | +1.71                    | 54.97                                | 55.04                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4886             | + 2 31           | S                                                                 |                                                                 | 22 34.83                 | +1.52                    | 36.35                                | S                                                                   |                                                                 | 41 29.61                 | +1.71                    | 31.32                                | 54.97                                       |                     |                                   |                                                                            |
| Mar. 30                                                                                                               | 4934             | + 41 36          | N                                                                 | <i>I. P. W.</i>                                                 | 14 32 41.46              | -1.34                    | 40.12                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 51 36.76              | -1.74                    | 35.02                                | 18 54.90                                    |                     |                                   |                                                                            |
|                                                                                                                       | 4958             | + 40 51          | N                                                                 | <i>d</i><br>$c = 0.2$                                           | 38 38.62                 | -1.35                    | 37.27                                | N                                                                   | <i>d</i><br>$c = 0.2$                                           | 57 34.00                 | -1.74                    | 32.26                                | 54.99                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4969             | + 27 24          | N                                                                 | $b = 0.8$<br>$a = 17.9$                                         | 40 31.70                 | -1.48                    | 31.22                                | N                                                                   | $b = 0.7$<br>$a = 4.4$                                          | 59 27.93                 | -1.78                    | 26.15                                | 54.93                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4926             | + 14 55          | S                                                                 | <i>s</i><br>$Q = 1.60$                                          | 31 49.12                 | -1.59                    | 47.53                                | S                                                                   | <i>s</i><br>$Q = 1.76$                                          | 50 44.27                 | -1.79                    | 42.48                                | 54.95                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4939             | - 8 3            | S                                                                 |                                                                 | 35 51.36                 | -1.75                    | 49.61                                | S                                                                   |                                                                 | 54 46.41                 | -1.82                    | 44.59                                | 54.98                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4945             | - 7 7            | S                                                                 |                                                                 | 37 2.98                  | -1.74                    | 1.24                                 | S                                                                   |                                                                 | 55 57.96                 | -1.82                    | 56.14                                | 54.90                                       |                     |                                   |                                                                            |
| Mar. 31                                                                                                               | 4223             | + 25 12          | N                                                                 | <i>I. P. W.</i>                                                 | 12 6 13.52               | +1.66                    | 15.18                                | N                                                                   | <i>I. P. W.</i>                                                 | 12 25 8.51               | +1.76                    | 10.27                                | 18 55.09                                    |                     |                                   |                                                                            |
|                                                                                                                       | 4240             | + 23 16          | N                                                                 | <i>d</i><br>$c = 0.1$                                           | 10 4.82                  | +1.65                    | 6.47                                 | N                                                                   | <i>d</i><br>$c = 0.1$                                           | 28 59.71                 | +1.76                    | 61.47                                | 55.00                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4260             | + 21 42          | N                                                                 | $b = 0.2$<br>$a = 16.9$                                         | 14 21.62                 | +1.64                    | 23.26                                | N                                                                   | $b = 0.1$<br>$a = 0.6$                                          | 33 16.50                 | +1.76                    | 18.26                                | 55.00                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4250             | + 9 26           | S                                                                 | <i>s</i><br>$Q = 1.60$                                          | 12 15.99                 | +1.55                    | 17.54                                | S                                                                   | <i>s</i><br>$Q = 1.76$                                          | 31 10.75                 | +1.76                    | 12.51                                | 54.97                                       |                     |                                   |                                                                            |
|                                                                                                                       | 4267             | + 11 4           | S                                                                 |                                                                 | 16 44.36                 | +1.56                    | 45.92                                | S                                                                   |                                                                 | 35 39.18                 | +1.76                    | 40.94                                | 55.02                                       |                     |                                   |                                                                            |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *si*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

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OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*MOULMEIN (E) Lat.  $16^\circ 30'$ , Long.  $6^h 30^m 41^s$ : AND AKYAB (W) Lat.  $20^\circ 8'$ , Long.  $6^h 11^m 45^s$ .

| MOULMEIN (E) Lat. 16° 30', Long. 6° 30' 41": AND AKYAB (W) Lat. 20° 8', Long. 6° 11' 45". |               |             |                                  |                                                   |                    |                  |                           |                                    |                                                  |                    |                  |                           |                                       |               |                                |                                                                              |                     |
|-------------------------------------------------------------------------------------------|---------------|-------------|----------------------------------|---------------------------------------------------|--------------------|------------------|---------------------------|------------------------------------|--------------------------------------------------|--------------------|------------------|---------------------------|---------------------------------------|---------------|--------------------------------|------------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                         | STAR          |             | TRANSITS OBSERVED AT E           |                                                   |                    |                  |                           | TRANSITS OBSERVED AT W             |                                                  |                    |                  |                           | Difference of Corrected Times (W - E) |               | Correction for Rate of W Clock | Corrns. for Persl. Equations<br>$S_N - S_8 = -0.004$<br>$H_N - H_8 = +0.046$ | $\delta L_N + \rho$ |
|                                                                                           |               |             | By Strahan, with Telescope No. 2 |                                                   |                    |                  |                           | By Heaviside, with Telescope No. 1 |                                                  |                    |                  |                           | By each Star                          | Mean of Group |                                |                                                                              |                     |
|                                                                                           | B.A.C. Number | Declination | Star's Aspect                    | In-strumental Position and Correction Constants   | Mean Observed Time | Total Correction | Seconds of Corrected Time | Star's Aspect                      | In-strumental Position and Correction Constants  | Mean Observed Time | Total Correction | Seconds of Corrected Time |                                       |               |                                |                                                                              |                     |
| 1884                                                                                      |               | ° ' "       |                                  |                                                   | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  |                                    |                                                  | <i>h m s</i>       | <i>s</i>         | <i>s</i>                  | <i>m s</i>                            |               |                                |                                                                              |                     |
| Mar.31                                                                                    | 4304          | + 28 11     | N                                | <i>I. P. W.</i>                                   | 12 24 41.98        | -1.50            | 40.48                     | N                                  | <i>I. P. W.</i>                                  | 12 43 37.34        | -1.76            | 35.58                     | 18 55.10                              |               |                                |                                                                              |                     |
|                                                                                           | 4315          | + 28 11     | N                                | <i>d</i><br>$c - 0.1$                             | 27 6.56            | -1.50            | 5.06                      | N                                  | <i>d</i><br>$c + 0.1$                            | 46 1.89            | -1.76            | 0.13                      | 55.07                                 |               |                                |                                                                              |                     |
|                                                                                           | 4328          | + 21 53     | N                                | $b + 0.2$<br>$a - 16.9$                           | 28 38.84           | -1.56            | 37.28                     | N                                  | $b + 0.1$<br>$a + 0.6$                           | 47 34.10           | -1.76            | 32.34                     | 55.06                                 |               |                                |                                                                              |                     |
|                                                                                           | 4286          | + 8 18      | S                                | <i>s</i><br>$Q - 1.60$                            | 20 49.38           | -1.66            | 47.72                     | S                                  | <i>s</i><br>$Q - 1.76$                           | 39 44.47           | -1.76            | 42.71                     | 54.99                                 |               |                                |                                                                              |                     |
|                                                                                           | 4292          | + 12 36     | S                                |                                                   | 22 27.17           | -1.63            | 25.54                     | S                                  |                                                  | 41 22.26           | -1.76            | 20.50                     | 54.96                                 |               |                                |                                                                              |                     |
|                                                                                           | 4340          | + 4 2       | S                                |                                                   | 30 49.65           | -1.68            | 47.97                     | S                                  |                                                  | 49 44.66           | -1.76            | 42.90                     | 54.93                                 |               |                                |                                                                              |                     |
| Mar.31                                                                                    | 4864          | + 27 1      | N                                | <i>I. P. E.</i>                                   | 14 19 19.82        | +1.71            | 21.53                     | N                                  | <i>I. P. W.</i>                                  | 14 38 14.65        | +1.76            | 16.41                     | 18 54.88                              |               |                                |                                                                              |                     |
|                                                                                           | 4876          | + 27 34     | N                                | <i>d</i><br>$c + 0.5$                             | 20 55.54           | +1.72            | 57.26                     | N                                  | <i>d</i><br>$c + 0.1$                            | 39 50.45           | +1.76            | 52.21                     | 54.95                                 |               |                                |                                                                              |                     |
|                                                                                           | 4897          | + 38 17     | N                                | $b + 0.6$<br>$a - 20.5$                           | 25 33.59           | +1.85            | 35.44                     | N                                  | $b + 0.1$<br>$a + 0.6$                           | 44 28.64           | +1.75            | 30.39                     | 54.95                                 |               |                                |                                                                              |                     |
|                                                                                           | 4817          | + 16 55     | S                                | <i>s</i><br>$Q + 1.60$                            | 16 17.05           | +1.62            | 18.67                     | S                                  | <i>s</i><br>$Q + 1.76$                           | 35 11.74           | +1.76            | 13.50                     | 54.83                                 |               |                                |                                                                              |                     |
|                                                                                           | 4886          | + 2 31      | S                                |                                                   | 22 34.16           | +1.51            | 35.67                     | S                                  |                                                  | 41 28.67           | +1.76            | 30.43                     | 54.76                                 |               |                                |                                                                              |                     |
| Mar.31                                                                                    | 4900          | + 27 24     | N                                | <i>I. P. E.</i>                                   | 14 40 31.91        | -1.48            | 30.43                     | N                                  | <i>I. P. W.</i>                                  | 14 59 27.21        | -1.76            | 25.45                     | 18 55.02                              |               |                                |                                                                              |                     |
|                                                                                           | 4926          | + 14 55     | S                                | <i>d</i><br>$c + 0.5$                             | 31 48.34           | -1.59            | 46.75                     | S                                  | <i>d</i><br>$c + 0.1$                            | 50 43.43           | -1.76            | 41.67                     | 54.92                                 |               |                                |                                                                              |                     |
|                                                                                           | 4939          | - 8 3       | S                                | $b + 0.6$<br>$a - 20.5$<br><i>s</i><br>$Q - 1.60$ | 35 50.56           | -1.77            | 48.79                     | S                                  | $b + 0.1$<br>$a + 0.6$<br><i>s</i><br>$Q - 1.76$ | 54 45.65           | -1.75            | 43.90                     | 55.11                                 |               |                                |                                                                              |                     |
| Apr. 1                                                                                    | 4223          | + 25 12     | N                                | <i>I. P. E.</i>                                   | 12 6 12.80         | +1.72            | 14.52                     | N                                  | <i>I. P. E.</i>                                  | 12 25 7.77         | +1.67            | 9.44                      | 18 54.92                              |               |                                |                                                                              |                     |
|                                                                                           | 4240          | + 23 16     | N                                | <i>d</i><br>$c + 0.8$                             | 10 4.07            | +1.70            | 5.77                      | N                                  | <i>d</i><br>$c - 1.5$                            | 28 58.93           | +1.67            | 60.60                     | 54.83                                 |               |                                |                                                                              |                     |
|                                                                                           | 4260          | + 21 42     | N                                | $b + 0.9$<br>$a - 22.0$                           | 14 20.87           | +1.69            | 22.56                     | N                                  | $b - 1.7$<br>$a + 6.6$                           | 33 15.78           | +1.68            | 17.46                     | 54.90                                 |               |                                |                                                                              |                     |
|                                                                                           | 4228          | + 10 56     | S                                | <i>s</i><br>$Q + 1.60$                            | 8 10.54            | +1.59            | 12.13                     | S                                  | <i>s</i><br>$Q + 1.76$                           | 27 5.18            | +1.71            | 6.89                      | 54.76                                 |               |                                |                                                                              |                     |
|                                                                                           | 4250          | + 9 26      | S                                |                                                   | 12 15.26           | +1.58            | 16.84                     | S                                  |                                                  | 31 9.91            | +1.72            | 11.63                     | 54.79                                 |               |                                |                                                                              |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE X. OBSERVATIONS OF TRANSITS WITH W CLOCK, AND DEDUCTION

OF THE APPARENT DIFFERENCE OF LONGITUDES,  $\delta L_N + \rho$ .\*

| MOULMEIN (E) Lat. $16^{\circ} 30'$ , Long. $6^h 50^m 41^s$ : AND AKYAB (W) Lat. $20^{\circ} 8'$ , Long. $6^h 11^m 45^s$ . |                  |                  |                                                                   |                                                                 |                          |                          |                                      |                                                                     |                                                                 |                          |                          |                                      |                                             |                     |                                   |                                                                             |                     |
|---------------------------------------------------------------------------------------------------------------------------|------------------|------------------|-------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------------------------------|-----------------------------------------------------------------|--------------------------|--------------------------|--------------------------------------|---------------------------------------------|---------------------|-----------------------------------|-----------------------------------------------------------------------------|---------------------|
| Astronomical Date                                                                                                         | STAR             |                  | TRANSITS OBSERVED AT E<br><i>By Strahan, with Telescope No. 2</i> |                                                                 |                          |                          |                                      | TRANSITS OBSERVED AT W<br><i>By Heaviride, with Telescope No. 1</i> |                                                                 |                          |                          |                                      | Difference of<br>Corrected Times<br>(W - E) |                     | Correction for Rate of<br>W Clock | Corrs. for Persl. Equations<br>$S_N - S_S = -0.004$<br>$H_N - H_S = +0.046$ | $\delta L_N + \rho$ |
|                                                                                                                           | B.A.C.<br>Number | Declina-<br>tion | Star's Aspect                                                     | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | Star's Aspect                                                       | In-<br>strumental<br>Position<br>and<br>Correction<br>Constants | Mean<br>Observed<br>Time | Total<br>Correc-<br>tion | Seconds<br>of<br>Correct-<br>ed Time | By each<br>Star                             | Mean<br>of<br>Group |                                   |                                                                             |                     |
| 1884                                                                                                                      |                  | 0                |                                                                   |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             |                                                                     |                                                                 | <i>h m s</i>             | <i>s</i>                 | <i>s</i>                             | <i>m s</i>                                  |                     |                                   |                                                                             |                     |
| Apr. 1                                                                                                                    | 4304             | + 28 11          | N                                                                 | <i>I. P. E.</i>                                                 | 12 24 41.18              | -1.45                    | 39.73                                | N                                                                   | <i>I. P. E.</i>                                                 | 12 43 36.58              | -1.86                    | 34.72                                | 18 54.99                                    |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4315             | + 28 11          | N                                                                 | <i>c + 0.8</i><br><i>d</i>                                      | 27 5.84                  | -1.45                    | 4.39                                 | N                                                                   | <i>c - 1.5</i><br><i>d</i>                                      | 45 61.16                 | -1.86                    | 59.30                                | 54.91                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4328             | + 21 53          | N                                                                 | <i>b + 0.9</i><br><i>a - 22.0</i>                               | 28 38.08                 | -1.51                    | 36.57                                | N                                                                   | <i>b - 1.7</i><br><i>a + 6.6</i>                                | 47 33.27                 | -1.85                    | 31.42                                | 54.85                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4286             | + 8 18           | S                                                                 | <i>s</i>                                                        | 20 48.66                 | -1.63                    | 47.03                                | S                                                                   | <i>s</i>                                                        | 39 43.70                 | -1.80                    | 41.90                                | 54.87                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4340             | + 4 2            | S                                                                 | <i>Q - 1.60</i>                                                 | 30 48.89                 | -1.67                    | 47.22                                | S                                                                   | <i>Q - 1.76</i>                                                 | 49 43.87                 | -1.79                    | 42.08                                | 54.86                                       |                     |                                   |                                                                             |                     |
| Apr. 1                                                                                                                    | 4864             | + 27 1           | N                                                                 | <i>I. P. W.</i>                                                 | 14 19 18.95              | +1.68                    | 20.63                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 38 13.88              | +1.66                    | 15.54                                | 18 54.91                                    |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4897             | + 38 17          | N                                                                 | <i>c - 0.6</i><br><i>d</i>                                      | 25 32.78                 | +1.81                    | 34.59                                | N                                                                   | <i>c - 1.5</i><br><i>d</i>                                      | 44 28.03                 | +1.61                    | 29.64                                | 55.05                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4817             | + 16 55          | S                                                                 | <i>b + 0.2</i><br><i>a - 21.0</i>                               | 16 16.19                 | +1.59                    | 17.78                                | S                                                                   | <i>b - 1.7</i><br><i>a + 6.6</i>                                | 35 10.90                 | +1.69                    | 12.59                                | 54.81                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4855             | - 5 9            | S                                                                 | <i>s</i>                                                        | 17 56.86                 | +1.41                    | 58.27                                | S                                                                   | <i>s</i>                                                        | 36 51.45                 | +1.76                    | 53.21                                | 54.94                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4886             | + 2 31           | S                                                                 | <i>Q + 1.60</i>                                                 | 22 33.22                 | +1.48                    | 34.70                                | S                                                                   | <i>Q + 1.76</i>                                                 | 41 27.86                 | +1.74                    | 29.60                                | 54.90                                       |                     |                                   |                                                                             |                     |
| Apr. 1                                                                                                                    | 4934             | + 41 36          | N                                                                 | <i>I. P. W.</i>                                                 | 14 32 39.81              | -1.34                    | 38.47                                | N                                                                   | <i>I. P. E.</i>                                                 | 14 51 35.34              | -1.93                    | 33.41                                | 18 54.94                                    |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4958             | + 40 51          | N                                                                 | <i>c - 0.6</i><br><i>d</i>                                      | 38 36.95                 | -1.35                    | 35.60                                | N                                                                   | <i>c - 1.5</i><br><i>d</i>                                      | 57 32.51                 | -1.92                    | 30.59                                | 54.99                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4969             | + 27 24          | N                                                                 | <i>b + 0.2</i><br><i>a - 21.0</i>                               | 40 31.05                 | -1.52                    | 29.53                                | N                                                                   | <i>b - 1.7</i><br><i>a + 6.6</i>                                | 59 26.43                 | -1.86                    | 24.57                                | 55.04                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4926             | + 14 55          | S                                                                 | <i>s</i>                                                        | 31 47.54                 | -1.62                    | 45.92                                | S                                                                   | <i>s</i>                                                        | 50 42.58                 | -1.82                    | 40.76                                | 54.84                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4939             | - 8 3            | S                                                                 | <i>Q - 1.60</i>                                                 | 35 49.75                 | -1.81                    | 47.94                                | S                                                                   | <i>Q - 1.76</i>                                                 | 54 44.53                 | -1.75                    | 42.78                                | 54.84                                       |                     |                                   |                                                                             |                     |
|                                                                                                                           | 4945             | - 7 7            | S                                                                 |                                                                 | 36 61.37                 | -1.80                    | 59.57                                | S                                                                   |                                                                 | 55 56.18                 | -1.75                    | 54.43                                | 54.86                                       |                     |                                   |                                                                             |                     |

NOTE.— $1^d = 0.0225$ . Transcribing Equation *nil*, all records having been transcribed by the same person.\*  $\rho$  is the retardation of an electric signal between the stations.

TABLE XI. DEDUCTION OF CLOCK RATE CORRECTIONS FROM THE OBSERVATIONS OF TRANSITS. 513

| Arc                           | Approximate Difference of Longitude | Intervals between Nights of Observations | Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz. :                    |                       |                           |                       |                                    |                       |                       |                                                           |                     |
|-------------------------------|-------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------|---------------------------|-----------------------|------------------------------------|-----------------------|-----------------------|-----------------------------------------------------------|---------------------|
|                               |                                     |                                          | $\alpha$ , Corrections for the Intervals between Nights of Observations, and                                |                       |                           |                       |                                    |                       |                       |                                                           |                     |
|                               |                                     |                                          | $\beta$ , Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities $\alpha$ . |                       |                           |                       |                                    |                       |                       |                                                           |                     |
|                               |                                     |                                          | $\alpha$ at E Station for                                                                                   |                       | $\alpha$ at W Station for |                       | Astronomical Dates of Observations | $\beta$ for           |                       | Correction to Observed Difference of Times of Transit for |                     |
| E Clock                       | W Clock                             | E Clock                                  | W Clock                                                                                                     | E Clock               | W Clock                   | E Clock               |                                    | W Clock               |                       |                                                           |                     |
| Alyab (E), and Calcutta (W)   | 18 <sup>m</sup> 9 <sup>s</sup>      | 1883-84                                  | <i>s</i>                                                                                                    | <i>s</i>              | <i>s</i>                  | <i>s</i>              | 1883-84                            | <i>s</i>              | <i>s</i>              | <i>s</i>                                                  | <i>s</i>            |
|                               |                                     | .....                                    | ...                                                                                                         | ...                   | ...                       | ...                   | Nov. 27                            | - 0 <sup>.150</sup> * | + 0 <sup>.263</sup> * | - 0 <sup>.045</sup>                                       | + 0 <sup>.080</sup> |
|                               |                                     | Dec. 8 to 9                              | - 0 <sup>.24</sup>                                                                                          | - 1 <sup>.09</sup>    | + 0 <sup>.08</sup> †      | - 0 <sup>.76</sup> †  | Dec. 8                             | - 0 <sup>.010</sup>   | - 0 <sup>.045</sup>   | - 0 <sup>.003</sup>                                       | - 0 <sup>.014</sup> |
|                               |                                     | " 9 " 10                                 | - 0 <sup>.31</sup> †                                                                                        | - 0 <sup>.77</sup> †  | - 0 <sup>.35</sup>        | - 0 <sup>.92</sup>    | " 9                                | - 0 <sup>.012</sup>   | - 0 <sup>.042</sup>   | - 0 <sup>.004</sup>                                       | - 0 <sup>.013</sup> |
|                               |                                     | " 10 " 11                                | - 0 <sup>.29</sup>                                                                                          | - 0 <sup>.25</sup>    | - 0 <sup>.66</sup> †      | - 0 <sup>.64</sup> †  | " 10                               | - 0 <sup>.013</sup>   | - 0 <sup>.024</sup>   | - 0 <sup>.004</sup>                                       | - 0 <sup>.007</sup> |
|                               |                                     | " 11 " 12                                | - 0 <sup>.44</sup> †                                                                                        | - 0 <sup>.09</sup> †  | - 0 <sup>.39</sup>        | + 0 <sup>.11</sup>    | " 11                               | - 0 <sup>.014</sup>   | - 0 <sup>.003</sup>   | - 0 <sup>.004</sup>                                       | - 0 <sup>.001</sup> |
|                               |                                     | " 12 " 13                                | - 0 <sup>.25</sup>                                                                                          | + 0 <sup>.23</sup>    | + 0 <sup>.12</sup> †      | + 0 <sup>.56</sup> †  | " 12                               | - 0 <sup>.013</sup>   | + 0 <sup>.007</sup>   | - 0 <sup>.004</sup>                                       | + 0 <sup>.002</sup> |
|                               |                                     | " 13 " 14                                | + 0 <sup>.10</sup> †                                                                                        | + 0 <sup>.35</sup> †  | - 0 <sup>.20</sup>        | + 0 <sup>.06</sup>    | " 13                               | - 0 <sup>.009</sup>   | + 0 <sup>.006</sup>   | - 0 <sup>.003</sup>                                       | + 0 <sup>.002</sup> |
| .....                         | ...                                 | ...                                      | ...                                                                                                         | ...                   | " 14                      | - 0 <sup>.008</sup>   | + 0 <sup>.003</sup>                | - 0 <sup>.002</sup>   | + 0 <sup>.001</sup>   |                                                           |                     |
| Alyab (E), and Chittagong (W) | 4 <sup>m</sup> 14 <sup>s</sup>      | Dec. 26 to 27                            | + 0 <sup>.65</sup> †                                                                                        | - 8 <sup>.81</sup> †  | + 0 <sup>.78</sup>        | - 8 <sup>.64</sup>    | Dec. 26                            | + 0 <sup>.033</sup>   | - 0 <sup>.360</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.025</sup> |
|                               |                                     | " 27 " 28                                | + 0 <sup>.68</sup>                                                                                          | - 9 <sup>.03</sup>    | + 0 <sup>.96</sup> †      | - 8 <sup>.72</sup> †  | " 27                               | + 0 <sup>.30</sup>    | - 0 <sup>.368</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.026</sup> |
|                               |                                     | " 28 " 29                                | + 0 <sup>.76</sup> †                                                                                        | - 8 <sup>.94</sup> †  | + 0 <sup>.79</sup>        | - 8 <sup>.98</sup>    | " 28                               | + 0 <sup>.31</sup>    | - 0 <sup>.375</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.026</sup> |
|                               |                                     | " 29 " 30                                | + 0 <sup>.76</sup>                                                                                          | - 8 <sup>.91</sup>    | + 0 <sup>.39</sup> †      | - 9 <sup>.21</sup> †  | " 29                               | + 0 <sup>.32</sup>    | - 0 <sup>.373</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.026</sup> |
|                               |                                     | " 30 " Jan. 2                            | + 1 <sup>.95</sup> †                                                                                        | - 28 <sup>.35</sup> † | + 2 <sup>.01</sup>        | - 28 <sup>.29</sup>   | " 30                               | + 0 <sup>.31</sup>    | - 0 <sup>.377</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.027</sup> |
|                               |                                     | .....                                    | ...                                                                                                         | ...                   | ...                       | ...                   | Jan. 2                             | + 0 <sup>.31</sup>    | - 0 <sup>.387</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.027</sup> |
|                               |                                     | Jan. 2 to 3                              | + 0 <sup>.76</sup>                                                                                          | - 9 <sup>.24</sup>    | + 1 <sup>.13</sup> †      | - 8 <sup>.88</sup> †  | " 3                                | + 0 <sup>.33</sup>    | - 0 <sup>.381</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.027</sup> |
|                               |                                     | " 3 " 4                                  | + 0 <sup>.94</sup> †                                                                                        | - 8 <sup>.93</sup> †  | + 0 <sup>.84</sup>        | - 9 <sup>.03</sup>    | " 4                                | + 0 <sup>.35</sup>    | - 0 <sup>.376</sup>   | + 0 <sup>.002</sup>                                       | - 0 <sup>.027</sup> |
| Promé (E), and Chittagong (W) | 13 <sup>m</sup> 30 <sup>s</sup>     | Jan. 21 to 23                            | + 2 <sup>.01</sup>                                                                                          | + 0 <sup>.90</sup>    | + 1 <sup>.77</sup> †      | + 0 <sup>.60</sup> †  | Jan. 21                            | + 0 <sup>.084</sup>   | + 0 <sup>.038</sup>   | + 0 <sup>.019</sup>                                       | + 0 <sup>.009</sup> |
|                               |                                     | " 22 " 23                                | †                                                                                                           | + 1 <sup>.08</sup>    | †                         | + 1 <sup>.28</sup> †  | " 22                               | + 0 <sup>.086</sup>   | + 0 <sup>.041</sup>   | + 0 <sup>.019</sup>                                       | + 0 <sup>.009</sup> |
|                               |                                     | " 23 " 24                                | + 2 <sup>.26</sup>                                                                                          | + 1 <sup>.19</sup>    | + 2 <sup>.07</sup> †      | + 0 <sup>.99</sup> †  | " 23                               | + 0 <sup>.092</sup>   | + 0 <sup>.047</sup>   | + 0 <sup>.021</sup>                                       | + 0 <sup>.011</sup> |
|                               |                                     | " 24 " 25                                | + 2 <sup>.28</sup>                                                                                          | + 1 <sup>.05</sup>    | + 2 <sup>.53</sup> †      | + 1 <sup>.23</sup> †  | " 24                               | + 0 <sup>.095</sup>   | + 0 <sup>.047</sup>   | + 0 <sup>.021</sup>                                       | + 0 <sup>.011</sup> |
|                               |                                     | " 25 " 26                                | + 2 <sup>.32</sup>                                                                                          | + 0 <sup>.81</sup>    | + 2 <sup>.09</sup> †      | + 0 <sup>.62</sup> †  | " 25                               | + 0 <sup>.096</sup>   | + 0 <sup>.039</sup>   | + 0 <sup>.022</sup>                                       | + 0 <sup>.009</sup> |
|                               |                                     | " 26 " 29                                | + 7 <sup>.67</sup>                                                                                          | + 3 <sup>.21</sup>    | + 7 <sup>.91</sup> †      | + 3 <sup>.47</sup> †  | " 26                               | + 0 <sup>.099</sup>   | + 0 <sup>.036</sup>   | + 0 <sup>.022</sup>                                       | + 0 <sup>.008</sup> |
|                               |                                     | " 29 " 30                                | + 2 <sup>.37</sup>                                                                                          | + 1 <sup>.21</sup>    | + 2 <sup>.12</sup> †      | + 0 <sup>.93</sup> †  | " 29                               | + 0 <sup>.101</sup>   | + 0 <sup>.049</sup>   | + 0 <sup>.023</sup>                                       | + 0 <sup>.011</sup> |
|                               |                                     | .....                                    | ...                                                                                                         | ...                   | ...                       | ...                   | " 30                               | + 0 <sup>.099</sup>   | + 0 <sup>.050</sup>   | + 0 <sup>.022</sup>                                       | + 0 <sup>.011</sup> |
| Promé (E), and Alyab (W)      | 9 <sup>m</sup> 16 <sup>s</sup>      | Feb. 8 to 9                              | + 2 <sup>.74</sup>                                                                                          | + 6 <sup>.66</sup>    | + 3 <sup>.01</sup> †      | + 6 <sup>.92</sup> †  | Feb. 8                             | + 0 <sup>.114</sup>   | + 0 <sup>.278</sup>   | + 0 <sup>.018</sup>                                       | + 0 <sup>.043</sup> |
|                               |                                     | " 9 " 12                                 | + 7 <sup>.65</sup>                                                                                          | + 21 <sup>.06</sup>   | + 7 <sup>.50</sup> †      | + 20 <sup>.91</sup> † | " 9                                | + 0 <sup>.112</sup>   | + 0 <sup>.281</sup>   | + 0 <sup>.017</sup>                                       | + 0 <sup>.043</sup> |
|                               |                                     | " 12 " 13                                | + 2 <sup>.95</sup>                                                                                          | + 8 <sup>.26</sup>    | + 3 <sup>.04</sup> †      | + 8 <sup>.42</sup> †  | " 12                               | + 0 <sup>.119</sup>   | + 0 <sup>.331</sup>   | + 0 <sup>.018</sup>                                       | + 0 <sup>.051</sup> |
|                               |                                     | .....                                    | ...                                                                                                         | ...                   | ...                       | ...                   | " 13                               | + 0 <sup>.123</sup>   | + 0 <sup>.344</sup>   | + 0 <sup>.019</sup>                                       | + 0 <sup>.053</sup> |

\* Determined from Nautical Almanac stars observed during that night. † These values being burdened with the pivot errors of the telescopes are neglected.  
 ‡ E Clock was stopped on the morning of 23rd January 1884.

| Aro                            | Approximate Difference of Longitude | Intervals<br>between Nights<br>of Observations | Rate Corrections for both Clocks Deduced from Transits Observed at both Stations, viz. :<br>a, Corrections for the Intervals between Nights of Observations, and<br>β, Hourly Corrections for Nights of Observations, Interpolated by means of the Quantities α. |         |                       |         |                                          |         |         |                                                                 |         |  |
|--------------------------------|-------------------------------------|------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------|---------|------------------------------------------|---------|---------|-----------------------------------------------------------------|---------|--|
|                                |                                     |                                                | α at E Station<br>for                                                                                                                                                                                                                                            |         | α at W Station<br>for |         | Astronomical<br>Dates of<br>Observations | β for   |         | Correction to Observed<br>Difference of Times<br>of Transit for |         |  |
|                                |                                     |                                                | E Clock                                                                                                                                                                                                                                                          | W Clock | E Clock               | W Clock |                                          | E Clock | W Clock | E Clock                                                         | W Clock |  |
| Moulmein (E), and<br>Prome (W) | 9" 39"                              | 1884                                           | s                                                                                                                                                                                                                                                                | s       | s                     | s       | 1884                                     | s       | s       | s                                                               | s       |  |
|                                |                                     | Mar. 8 to 9                                    | + 10'82*                                                                                                                                                                                                                                                         | + 2'59* | + 10'66               | + 2'57  | Mar. 8                                   | + 0'444 | + 0'107 | + 0'071                                                         | + 0'017 |  |
|                                |                                     | " 9 „ 10                                       | + 11'10                                                                                                                                                                                                                                                          | + 2'37  | + 11'29*              | + 2'46* | " 9                                      | + '453  | + '103  | + '073                                                          | + '017  |  |
|                                |                                     | " 10 „ 11                                      | + 11'62                                                                                                                                                                                                                                                          | + 2'15  | + 11'52*              | + 2'07* | " 10                                     | + '473  | + '094  | + '076                                                          | + '015  |  |
|                                |                                     | " 11 „ 12                                      | + 11'71                                                                                                                                                                                                                                                          | + 1'93  | + 11'72*              | + 1'96* | " 11                                     | + '486  | + '085  | + '078                                                          | + '014  |  |
|                                |                                     | " 12 „ 13                                      | + 11'99                                                                                                                                                                                                                                                          | + 1'75  | + 12'08*              | + 1'84* | " 12                                     | + '494  | + '077  | + '079                                                          | + '012  |  |
|                                |                                     | " 13 „ 14                                      | + 12'46                                                                                                                                                                                                                                                          | + 1'94  | + 12'34*              | + 1'85* | " 13                                     | + '509  | + '077  | + '082                                                          | + '012  |  |
|                                |                                     | " 14 „ 15                                      | + 12'54                                                                                                                                                                                                                                                          | + 1'70  | + 12'54*              | + 1'64* | " 14                                     | + '521  | + '076  | + '084                                                          | + '012  |  |
|                                |                                     | .....                                          | ...                                                                                                                                                                                                                                                              | ...     | ...                   | ...     | " 15                                     | + '523  | + '071  | + '084                                                          | + '011  |  |
| Moulmein (E), and<br>Akyab (W) | 18" 55'                             | Mar. 26 to 27                                  | - 2'09                                                                                                                                                                                                                                                           | + 0'75  | - 2'22                | + 0'81* | Mar. 26                                  | - 0'090 | + 0'031 | - 0'028                                                         | + 0'010 |  |
|                                |                                     | " 27 „ 28                                      | - 2'37                                                                                                                                                                                                                                                           | + 0'80  | - 2'36                | + 0'89* | " 27                                     | - '094  | + '032  | - '030                                                          | + '010  |  |
|                                |                                     | " 28 „ 29                                      | - 2'65                                                                                                                                                                                                                                                           | + 0'86  | - 2'66                | + 0'73* | " 28                                     | - '105  | + '035  | - '033                                                          | + '011  |  |
|                                |                                     | " 29 „ 30                                      | - 2'23                                                                                                                                                                                                                                                           | + 0'80  | - 2'24*               | + 0'86* | " 29                                     | - '102  | + '035  | - '032                                                          | + '011  |  |
|                                |                                     | " 30 „ 31                                      | - 1'71                                                                                                                                                                                                                                                           | + 0'84  | - 1'66*               | + 0'82* | " 30                                     | - '082  | + '034  | - '026                                                          | + '011  |  |
|                                |                                     | " 31 „ Apr. 1                                  | - 1'83                                                                                                                                                                                                                                                           | + 0'78  | - 1'73*               | + 0'87* | " 31                                     | - '074  | + '034  | - '023                                                          | + '011  |  |
|                                |                                     | .....                                          | ...                                                                                                                                                                                                                                                              | ...     | ...                   | ...     | Apr. 1                                   | - '076  | + '033  | - '024                                                          | + '010  |  |

\* These values being burdened with the pivot errors of the telescopes are neglected.

TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ 

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AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1883-84.

| AKYAB (E), AND CALCUTTA (W).                                                             |                                |                 |                                 |                                                                                                                |                                                       |                                                                                                 |                                                                                      |                                  |             |
|------------------------------------------------------------------------------------------|--------------------------------|-----------------|---------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|-------------|
| Astronomical<br>Date                                                                     | Instrumental<br>Position<br>at |                 | By Clock Comparisons            |                                                                                                                |                                                       |                                                                                                 | By Transits at both Stations<br>with the same Clock                                  |                                  |             |
|                                                                                          |                                |                 | Epoch<br>by<br>E Clock<br>$T_E$ | Corrected<br>Difference of<br>Observed Times<br>at Epoch $T_E$<br>Reduced to Stars<br>of North Aspect<br>$M_N$ | Deduced<br>Clock Difference<br>D<br>at Epoch<br>$T_E$ | Apparent<br>Difference of<br>Longitude<br>by Stars of North<br>Aspect<br>$\delta L_N = D + M_N$ | Apparent Difference of<br>Longitude by Stars of North Aspect<br>by Observations with |                                  |             |
|                                                                                          | E                              | W               |                                 |                                                                                                                |                                                       |                                                                                                 | E Clock<br>$= \delta L_N - \rho$                                                     | W Clock<br>$= \delta L_N + \rho$ |             |
| 1883                                                                                     |                                |                 | $h \quad m \quad s$             | $m \quad s$                                                                                                    | $m \quad s$                                           | $m \quad s$                                                                                     | $m \quad s$                                                                          | $m \quad s$                      | $m \quad s$ |
| November 27                                                                              | <i>I. P. E.</i>                | <i>I. P. E.</i> | 4 23 15                         | + 0 10.869                                                                                                     | 17 58.767                                             | 18 9.636                                                                                        | 18 9.474                                                                             | 18 9.642                         |             |
| " "                                                                                      | "                              | "               | 41 41                           | 10.904                                                                                                         | 58.767                                                | 9.671                                                                                           | 9.484                                                                                | 9.666                            |             |
| December 8                                                                               | <i>I. P. W.</i>                | "               | 5 15 51                         | 17.704                                                                                                         | 51.738                                                | 9.442                                                                                           | 9.414                                                                                | 9.462                            |             |
| " "                                                                                      | "                              | "               | 29 31                           | 17.793                                                                                                         | 51.726                                                | 9.519                                                                                           | 9.391                                                                                | 9.495                            |             |
| " 9                                                                                      | "                              | <i>I. P. W.</i> | 15 51                           | 18.312                                                                                                         | 50.877                                                | 9.189                                                                                           | 9.020                                                                                | 9.152                            |             |
| " "                                                                                      | "                              | "               | 29 31                           | 18.264                                                                                                         | 50.866                                                | 9.130                                                                                           | 9.145                                                                                | 9.173                            |             |
| " 10                                                                                     | <i>I. P. E.</i>                | "               | 15 52                           | 18.826                                                                                                         | 50.354                                                | 9.180                                                                                           | 9.145                                                                                | 9.363                            |             |
| " "                                                                                      | "                              | "               | 29 31                           | 18.897                                                                                                         | 50.349                                                | 9.246                                                                                           | 9.093                                                                                | 9.258                            |             |
| " 11                                                                                     | "                              | <i>I. P. E.</i> | 15 52                           | 19.160                                                                                                         | 50.392                                                | 9.552                                                                                           | 9.448                                                                                | 9.713                            |             |
| " "                                                                                      | "                              | "               | 29 32                           | 19.220                                                                                                         | 50.392                                                | 9.612                                                                                           | 9.515                                                                                | 9.713                            |             |
| " 12                                                                                     | <i>I. P. W.</i>                | "               | 15 52                           | 18.584                                                                                                         | 50.784                                                | 9.368                                                                                           | 9.397                                                                                | 9.493                            |             |
| " "                                                                                      | "                              | "               | 29 32                           | 18.751                                                                                                         | 50.789                                                | 9.540                                                                                           | 9.452                                                                                | 9.544                            |             |
| " 13                                                                                     | "                              | <i>I. P. W.</i> | 15 53                           | 17.908                                                                                                         | 51.251                                                | 9.159                                                                                           | 8.989                                                                                | 9.196                            |             |
| " "                                                                                      | "                              | "               | 29 32                           | 17.898                                                                                                         | 51.250                                                | 9.148                                                                                           | 9.134                                                                                | 9.184                            |             |
| " 14                                                                                     | <i>I. P. E.</i>                | "               | 15 53                           | 17.893                                                                                                         | 51.488                                                | 9.381                                                                                           | 9.315                                                                                | 9.507                            |             |
| " "                                                                                      | "                              | "               | 29 32                           | 18.032                                                                                                         | 51.488                                                | 9.520                                                                                           | 9.402                                                                                | 9.440                            |             |
| Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations ... |                                |                 |                                 |                                                                                                                |                                                       | 18 9.618                                                                                        | 18 9.480                                                                             | 18 9.684                         |             |
| " " <i>I. P. W.</i> at E Station and <i>I. P. E.</i> at W Station                        |                                |                 |                                 |                                                                                                                |                                                       | 9.467                                                                                           | 9.414                                                                                | 9.498                            |             |
| " " <i>I. P. W.</i> at both stations ...                                                 |                                |                 |                                 |                                                                                                                |                                                       | 9.156                                                                                           | 9.072                                                                                | 9.176                            |             |
| " " <i>I. P. E.</i> at E Station and <i>I. P. W.</i> at W Station                        |                                |                 |                                 |                                                                                                                |                                                       | 9.332                                                                                           | 9.239                                                                                | 9.392                            |             |
| General Means ...                                                                        |                                |                 |                                 |                                                                                                                |                                                       | 18 9.393                                                                                        | 18 9.301                                                                             | 18 9.437                         |             |
| Whence ... $\delta L_N = 18 \quad 9.393$                                                 |                                |                 |                                 |                                                                                                                |                                                       | $\delta L_N = 18 \quad 9.369$                                                                   |                                                                                      |                                  |             |
| Correction for Relative Personal Equation, $H_N - S_N = + \quad 0.008$                   |                                |                 |                                 |                                                                                                                |                                                       | $H_N - S_N = + \quad 0.008$                                                                     |                                                                                      |                                  |             |
|                                                                                          |                                |                 |                                 |                                                                                                                |                                                       | $\Delta L_N = 18 \quad 9.401$                                                                   |                                                                                      |                                  |             |
| Again ... $\delta L_S = 18 \quad 9.365$                                                  |                                |                 |                                 |                                                                                                                |                                                       | $\delta L_S = 18 \quad 9.341$                                                                   |                                                                                      |                                  |             |
| Correction for Relative Personal Equation, $H_S - S_S = - \quad 0.029$                   |                                |                 |                                 |                                                                                                                |                                                       | $H_S - S_S = - \quad 0.029$                                                                     |                                                                                      |                                  |             |
|                                                                                          |                                |                 |                                 |                                                                                                                |                                                       | $\Delta L_S = 18 \quad 9.336$                                                                   |                                                                                      |                                  |             |
| Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 18 \quad 9.368$              |                                |                 |                                 |                                                                                                                |                                                       | $\Delta L = 18 \quad 9.345$                                                                     |                                                                                      |                                  |             |
| $\rho = + \quad 0.056$                                                                   |                                |                 |                                 |                                                                                                                |                                                       | $\rho = + \quad 0.068$                                                                          |                                                                                      |                                  |             |



TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1883-84.

| AKYAB (E), AND CHITTAGONG (W).                                                       |                                |                 |                                 |                                                                                                                |                                                       |                                                                                                 |                                                                                      |                                  |  |
|--------------------------------------------------------------------------------------|--------------------------------|-----------------|---------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------|--|
| Astronomical<br>Date                                                                 | Instrumental<br>Position<br>at |                 | By Clock Comparisons            |                                                                                                                |                                                       |                                                                                                 | By Transits at both Stations<br>with the same Clock                                  |                                  |  |
|                                                                                      |                                |                 | Epoch<br>by<br>E Clock<br>$T_E$ | Corrected<br>Difference of<br>Observed Times<br>at Epoch $T_E$<br>Reduced to Stars<br>of North Aspect<br>$M_N$ | Deduced<br>Clock Difference<br>D<br>at Epoch<br>$T_E$ | Apparent<br>Difference of<br>Longitude<br>by Stars of North<br>Aspect<br>$\delta L_N = D + M_N$ | Apparent Difference of<br>Longitude by Stars of North Aspect<br>by Observations with |                                  |  |
|                                                                                      | E                              | W               |                                 |                                                                                                                |                                                       |                                                                                                 | E Clock<br>$= \delta L_N - \rho$                                                     | W Clock<br>$= \delta L_N + \rho$ |  |
| 1883-84                                                                              |                                |                 | $h^m s$                         | $^m s$                                                                                                         | $^m s$                                                | $^m s$                                                                                          | $^m s$                                                                               | $^m s$                           |  |
| December 26                                                                          | <i>I. P. E.</i>                | <i>I. P. E.</i> | 5 51 16                         | + 0 16 461                                                                                                     | 3 58 026                                              | 4 14 487                                                                                        | 4 14 436                                                                             | 4 14 508                         |  |
| " "                                                                                  | "                              | "               | 6 6 32                          | 16 575                                                                                                         | 57 914                                                | 14 489                                                                                          | 14 368                                                                               | 14 498                           |  |
| " 27                                                                                 | <i>I. P. W.</i>                | "               | 5 51 15                         | 25 773                                                                                                         | 48 586                                                | 14 359                                                                                          | 14 253                                                                               | 14 335                           |  |
| " "                                                                                  | "                              | "               | 6 6 32                          | 25 837                                                                                                         | 48 484                                                | 14 321                                                                                          | 14 291                                                                               | 14 337                           |  |
| " 28                                                                                 | "                              | <i>I. P. W.</i> | 5 51 14                         | 35 130                                                                                                         | 38 916                                                | 14 046                                                                                          | 14 010                                                                               | 14 030                           |  |
| " "                                                                                  | "                              | "               | 6 7 39                          | 35 241                                                                                                         | 38 793                                                | 14 034                                                                                          | 13 970                                                                               | 14 030                           |  |
| " 29                                                                                 | <i>I. P. E.</i>                | "               | 5 51 13                         | 44 867                                                                                                         | 29 182                                                | 14 049                                                                                          | 13 928                                                                               | 14 038                           |  |
| " "                                                                                  | "                              | "               | 6 6 30                          | 44 969                                                                                                         | 29 072                                                | 14 041                                                                                          | 13 983                                                                               | 14 102                           |  |
| " 30                                                                                 | "                              | <i>I. P. E.</i> | 5 51 13                         | 54 789                                                                                                         | 19 531                                                | 14 320                                                                                          | 14 343                                                                               | 14 378                           |  |
| " "                                                                                  | "                              | "               | 6 5 21                          | 54 949                                                                                                         | 19 435                                                | 14 384                                                                                          | 14 316                                                                               | 14 367                           |  |
| January 2                                                                            | <i>I. P. W.</i>                | "               | 5 51 11                         | 1 24 974                                                                                                       | 2 49 300                                              | 14 274                                                                                          | 14 248                                                                               | 14 317                           |  |
| " "                                                                                  | "                              | "               | 6 6 28                          | 25 086                                                                                                         | 49 188                                                | 14 274                                                                                          | 14 280                                                                               | 14 309                           |  |
| " 3                                                                                  | "                              | <i>I. P. W.</i> | 5 51 10                         | 34 576                                                                                                         | 39 295                                                | 13 871                                                                                          | 13 863                                                                               | 13 961                           |  |
| " "                                                                                  | "                              | "               | 6 6 27                          | 34 748                                                                                                         | 39 187                                                | 13 935                                                                                          | 13 910                                                                               | 13 947                           |  |
| " 4                                                                                  | <i>I. P. E.</i>                | "               | 5 51 9                          | 44 589                                                                                                         | 29 443                                                | 14 032                                                                                          | 13 958                                                                               | 14 057                           |  |
| " "                                                                                  | "                              | "               | 6 6 26                          | 44 649                                                                                                         | 29 326                                                | 13 975                                                                                          | 14 010                                                                               | 14 052                           |  |
| Mean of daily mean values for instrumental position <i>I. P. E.</i> at both stations |                                |                 |                                 |                                                                                                                |                                                       | 4 14 420                                                                                        | 4 14 366                                                                             | 4 14 438                         |  |
| " " <i>I. P. W.</i> at E Station and <i>I. P. E.</i> at W Station                    |                                |                 |                                 |                                                                                                                |                                                       | 14 307                                                                                          | 14 268                                                                               | 14 325                           |  |
| " " <i>I. P. W.</i> at both stations                                                 |                                |                 |                                 |                                                                                                                |                                                       | 13 972                                                                                          | 13 938                                                                               | 13 992                           |  |
| " " <i>I. P. E.</i> at E Station and <i>I. P. W.</i> at W Station                    |                                |                 |                                 |                                                                                                                |                                                       | 14 024                                                                                          | 13 970                                                                               | 14 062                           |  |
| General Means                                                                        |                                |                 |                                 |                                                                                                                |                                                       | 4 14 181                                                                                        | 4 14 136                                                                             | 4 14 204                         |  |
| Whence ...                                                                           |                                |                 |                                 |                                                                                                                |                                                       | $\delta L_N = 4 14 181$                                                                         | $\delta L_N = 4 14 170$                                                              |                                  |  |
| Correction for Relative Personal Equation,                                           |                                |                 |                                 |                                                                                                                |                                                       | $H_N - S_N = + 0 008$                                                                           | $H_N - S_N = + 0 008$                                                                |                                  |  |
|                                                                                      |                                |                 |                                 |                                                                                                                |                                                       | $\Delta L_N = 4 14 189$                                                                         | $\Delta L_N = 4 14 178$                                                              |                                  |  |
| Again ...                                                                            |                                |                 |                                 |                                                                                                                |                                                       | $\delta L_S = 4 14 229$                                                                         | $\delta L_S = 4 14 218$                                                              |                                  |  |
| Correction for Relative Personal Equation,                                           |                                |                 |                                 |                                                                                                                |                                                       | $H_S - S_S = - 0 029$                                                                           | $H_S - S_S = - 0 029$                                                                |                                  |  |
|                                                                                      |                                |                 |                                 |                                                                                                                |                                                       | $\Delta L_S = 4 14 200$                                                                         | $\Delta L_S = 4 14 189$                                                              |                                  |  |
| Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) =$                         |                                |                 |                                 |                                                                                                                |                                                       | $4 14 195$                                                                                      | $\Delta L = 4 14 183$                                                                |                                  |  |
| $\rho = + 0 036$                                                                     |                                |                 |                                 |                                                                                                                |                                                       |                                                                                                 | $\rho = + 0 034$                                                                     |                                  |  |

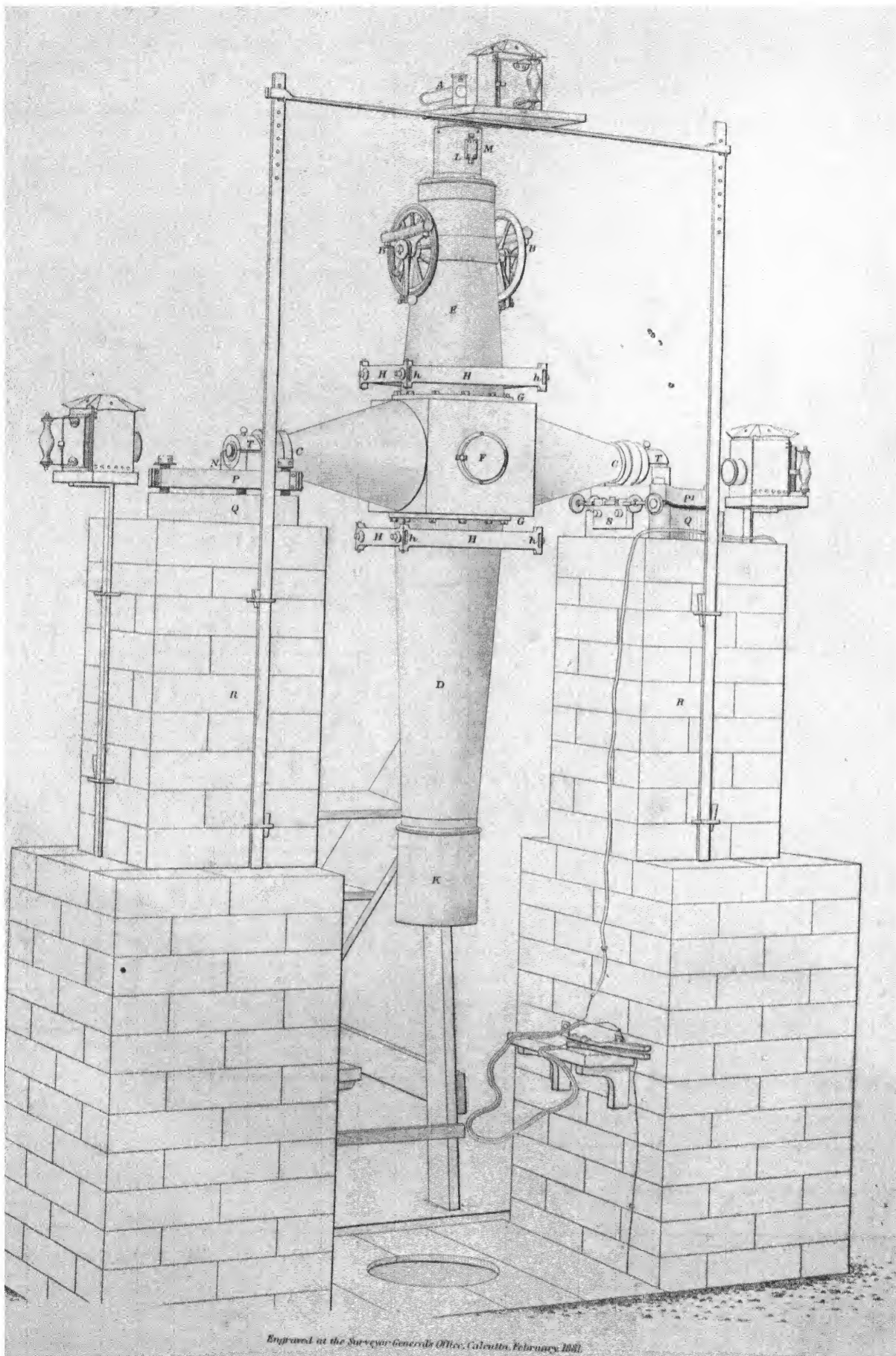
TABLE XII. DEDUCTION OF THE DIFFERENCE OF LONGITUDE,  $\Delta L$ 

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AND THE RETARDATION OF SIGNALS,  $\rho$ , SEASON 1883-84.

| PROME (E), AND CHITTAGONG (W).                                                                                                                                                   |                          |          |                                                                                |                                                                       | PROME (E), AND AKYAB (W).                                                                                                                                                        |                          |          |                                                                                |                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Astronomical Date                                                                                                                                                                | Instrumental Position at |          | Apparent Difference of Longitude by Stars of North Aspect by Observations with |                                                                       | Astronomical Date                                                                                                                                                                | Instrumental Position at |          | Apparent Difference of Longitude by Stars of North Aspect by Observations with |                                                                      |
|                                                                                                                                                                                  | E                        | W        | E Clock<br>= $\delta L_N - \rho$                                               | W Clock<br>= $\delta L_N + \rho$                                      |                                                                                                                                                                                  | E                        | W        | E Clock<br>= $\delta L_N - \rho$                                               | W Clock<br>= $\delta L_N + \rho$                                     |
| 1884 January 21                                                                                                                                                                  | I. P. W.                 | I. P. W. | <sup>m</sup> 13 <sup>s</sup> 30 <sup>19</sup> 8<br>30 <sup>21</sup> 4          | <sup>m</sup> 13 <sup>s</sup> 30 <sup>27</sup> 1<br>30 <sup>37</sup> 4 | 1884 February 8                                                                                                                                                                  | I. P. E.                 | I. P. E. | <sup>m</sup> 9 <sup>s</sup> 16 <sup>30</sup> 4<br>16 <sup>30</sup> 6           | <sup>m</sup> 9 <sup>s</sup> 16 <sup>32</sup> 1<br>16 <sup>41</sup> 3 |
| " "                                                                                                                                                                              | I. P. E.                 | "        | 30 <sup>36</sup> 1<br>30 <sup>45</sup> 3                                       | 30 <sup>39</sup> 0<br>30 <sup>38</sup> 7                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>30</sup> 6<br>16 <sup>41</sup> 3                                       | 16 <sup>41</sup> 3<br>16 <sup>45</sup> 3                             |
| " 22                                                                                                                                                                             | "                        | I. P. E. | 30 <sup>63</sup> 3<br>30 <sup>66</sup> 1                                       | 30 <sup>67</sup> 6<br>30 <sup>71</sup> 8                              | " "                                                                                                                                                                              | I. P. W.                 | "        | 16 <sup>30</sup> 4<br>16 <sup>39</sup> 8                                       | 16 <sup>45</sup> 3<br>16 <sup>45</sup> 6                             |
| " "                                                                                                                                                                              | I. P. W.                 | "        | 30 <sup>50</sup> 1<br>30 <sup>48</sup> 1                                       | 30 <sup>58</sup> 1<br>30 <sup>66</sup> 1                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>39</sup> 8<br>15 <sup>99</sup> 5                                       | 16 <sup>45</sup> 6<br>16 <sup>10</sup> 7                             |
| " 23                                                                                                                                                                             | "                        | I. P. W. | 30 <sup>39</sup> 3<br>30 <sup>39</sup> 6                                       | 30 <sup>45</sup> 1<br>30 <sup>50</sup> 5                              | " 9                                                                                                                                                                              | "                        | I. P. W. | 15 <sup>99</sup> 5<br>15 <sup>95</sup> 7                                       | 16 <sup>10</sup> 7<br>16 <sup>04</sup> 9                             |
| " "                                                                                                                                                                              | I. P. E.                 | "        | 30 <sup>35</sup> 3<br>30 <sup>35</sup> 0                                       | 30 <sup>46</sup> 0<br>30 <sup>41</sup> 8                              | " "                                                                                                                                                                              | "                        | "        | 15 <sup>95</sup> 7<br>16 <sup>13</sup> 9                                       | 16 <sup>04</sup> 9<br>16 <sup>27</sup> 0                             |
| " 24                                                                                                                                                                             | "                        | I. P. E. | 30 <sup>63</sup> 6<br>30 <sup>60</sup> 3                                       | 30 <sup>74</sup> 1<br>30 <sup>71</sup> 3                              | " "                                                                                                                                                                              | I. P. E.                 | "        | 16 <sup>13</sup> 9<br>16 <sup>12</sup> 0                                       | 16 <sup>27</sup> 0<br>16 <sup>21</sup> 1                             |
| " "                                                                                                                                                                              | I. P. W.                 | "        | 30 <sup>54</sup> 8<br>30 <sup>49</sup> 3                                       | 30 <sup>57</sup> 1<br>30 <sup>61</sup> 3                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>12</sup> 0<br>16 <sup>33</sup> 6                                       | 16 <sup>21</sup> 1<br>16 <sup>42</sup> 1                             |
| " 25                                                                                                                                                                             | "                        | I. P. W. | 30 <sup>37</sup> 9<br>30 <sup>37</sup> 7                                       | 30 <sup>50</sup> 1<br>30 <sup>54</sup> 3                              | " 12                                                                                                                                                                             | "                        | I. P. E. | 16 <sup>33</sup> 6<br>16 <sup>28</sup> 8                                       | 16 <sup>42</sup> 1<br>16 <sup>34</sup> 8                             |
| " "                                                                                                                                                                              | I. P. E.                 | "        | 30 <sup>23</sup> 2<br>30 <sup>25</sup> 9                                       | 30 <sup>44</sup> 8<br>30 <sup>41</sup> 6                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>28</sup> 8<br>16 <sup>12</sup> 6                                       | 16 <sup>34</sup> 8<br>16 <sup>27</sup> 8                             |
| " 26                                                                                                                                                                             | "                        | I. P. E. | 30 <sup>68</sup> 4<br>30 <sup>65</sup> 2                                       | 30 <sup>82</sup> 3<br>30 <sup>81</sup> 2                              | " "                                                                                                                                                                              | I. P. W.                 | "        | 16 <sup>12</sup> 6<br>16 <sup>06</sup> 8                                       | 16 <sup>27</sup> 8<br>16 <sup>21</sup> 6                             |
| " "                                                                                                                                                                              | I. P. W.                 | "        | 30 <sup>47</sup> 6<br>30 <sup>38</sup> 1                                       | 30 <sup>53</sup> 0<br>30 <sup>47</sup> 7                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>06</sup> 8<br>16 <sup>06</sup> 9                                       | 16 <sup>21</sup> 6<br>16 <sup>15</sup> 7                             |
| " 29                                                                                                                                                                             | "                        | I. P. W. | 30 <sup>27</sup> 3<br>30 <sup>24</sup> 8                                       | 30 <sup>38</sup> 5<br>30 <sup>36</sup> 3                              | " 13                                                                                                                                                                             | "                        | I. P. W. | 16 <sup>06</sup> 9<br>16 <sup>04</sup> 3                                       | 16 <sup>15</sup> 7<br>16 <sup>04</sup> 9                             |
| " "                                                                                                                                                                              | I. P. E.                 | "        | 30 <sup>41</sup> 5<br>30 <sup>36</sup> 2                                       | 30 <sup>44</sup> 3<br>30 <sup>42</sup> 3                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>04</sup> 3<br>16 <sup>20</sup> 6                                       | 16 <sup>04</sup> 9<br>16 <sup>23</sup> 3                             |
| " 30                                                                                                                                                                             | "                        | I. P. E. | 30 <sup>67</sup> 2<br>30 <sup>60</sup> 2                                       | 30 <sup>74</sup> 3<br>30 <sup>76</sup> 5                              | " "                                                                                                                                                                              | I. P. E.                 | "        | 16 <sup>20</sup> 6<br>16 <sup>16</sup> 1                                       | 16 <sup>23</sup> 3<br>16 <sup>20</sup> 8                             |
| " "                                                                                                                                                                              | I. P. W.                 | "        | 30 <sup>54</sup> 2<br>30 <sup>44</sup> 4                                       | 30 <sup>61</sup> 5<br>30 <sup>58</sup> 0                              | " "                                                                                                                                                                              | "                        | "        | 16 <sup>16</sup> 1<br>16 <sup>30</sup> 9                                       | 16 <sup>20</sup> 8<br>16 <sup>37</sup> 6                             |
| Mean of daily mean values for instrumental position                                                                                                                              |                          |          |                                                                                |                                                                       | Mean of daily mean values for instrumental position                                                                                                                              |                          |          |                                                                                |                                                                      |
| { I. P. E. at both stations ...<br>I. P. W. at E Station and<br>I. P. E. at W Station }<br>I. P. W. at both stations ...<br>I. P. E. at E Station and<br>I. P. W. at W Station } |                          |          |                                                                                |                                                                       | { I. P. E. at both stations ...<br>I. P. W. at E Station and<br>I. P. E. at W Station }<br>I. P. W. at both stations ...<br>I. P. E. at E Station and<br>I. P. W. at W Station } |                          |          |                                                                                |                                                                      |
| General Means ...                                                                                                                                                                |                          |          |                                                                                |                                                                       | General Means ...                                                                                                                                                                |                          |          |                                                                                |                                                                      |
| 13 30 <sup>44</sup> 5                                                                                                                                                            |                          |          |                                                                                |                                                                       | 9 16 <sup>17</sup> 6                                                                                                                                                             |                          |          |                                                                                |                                                                      |
| 13 30 <sup>54</sup> 4                                                                                                                                                            |                          |          |                                                                                |                                                                       | 9 16 <sup>26</sup> 2                                                                                                                                                             |                          |          |                                                                                |                                                                      |
| Whence ... $\delta L_N = 13 \text{ }^m 30^s 495$                                                                                                                                 |                          |          |                                                                                |                                                                       | Whence ... $\delta L_N = 9 \text{ }^m 16^s 219$                                                                                                                                  |                          |          |                                                                                |                                                                      |
| Correction for Relative Personal Equation, $H_N - S_N = + 0^s 008$                                                                                                               |                          |          |                                                                                |                                                                       | Correction for Relative Personal Equation, $H_N - S_N = + 0^s 008$                                                                                                               |                          |          |                                                                                |                                                                      |
| $\Delta L_N = 13 \text{ }^m 30^s 503$                                                                                                                                            |                          |          |                                                                                |                                                                       | $\Delta L_N = 9 \text{ }^m 16^s 227$                                                                                                                                             |                          |          |                                                                                |                                                                      |
| Again ... $\delta L_S = 13 \text{ }^m 30^s 521$                                                                                                                                  |                          |          |                                                                                |                                                                       | Again ... $\delta L_S = 9 \text{ }^m 16^s 259$                                                                                                                                   |                          |          |                                                                                |                                                                      |
| Correction for Relative Personal Equation, $H_S - S_S = - 0^s 029$                                                                                                               |                          |          |                                                                                |                                                                       | Correction for Relative Personal Equation, $H_S - S_S = - 0^s 029$                                                                                                               |                          |          |                                                                                |                                                                      |
| $\Delta L_S = 13 \text{ }^m 30^s 492$                                                                                                                                            |                          |          |                                                                                |                                                                       | $\Delta L_S = 9 \text{ }^m 16^s 230$                                                                                                                                             |                          |          |                                                                                |                                                                      |
| Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 13 \text{ }^m 30^s 497$                                                                                              |                          |          |                                                                                |                                                                       | Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) = 9 \text{ }^m 16^s 229$                                                                                               |                          |          |                                                                                |                                                                      |
| $\rho = + 0^s 050$                                                                                                                                                               |                          |          |                                                                                |                                                                       | $\rho = + 0^s 043$                                                                                                                                                               |                          |          |                                                                                |                                                                      |

| MOULMEIN (E), AND PROME (W).                                 |                                                                                                                                                                                        |          |                                                                                |                                               | MOULMEIN (E), AND AKYAB (W).                                 |                                                                                                                                                                                        |          |                                                                                |                                                |
|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------------------------------------------------------------------|------------------------------------------------|
| Astronomical Date                                            | Instrumental Position at                                                                                                                                                               |          | Apparent Difference of Longitude by Stars of North Aspect by Observations with |                                               | Astronomical Date                                            | Instrumental Position at                                                                                                                                                               |          | Apparent Difference of Longitude by Stars of North Aspect by Observations with |                                                |
|                                                              | E                                                                                                                                                                                      | W        | E Clock<br>$= \delta L_N - \rho$                                               | W Clock<br>$= \delta L_N + \rho$              |                                                              | E                                                                                                                                                                                      | W        | E Clock<br>$= \delta L_N - \rho$                                               | W Clock<br>$= \delta L_N + \rho$               |
| 1884                                                         |                                                                                                                                                                                        |          | m s                                                                            | m s                                           | 1884                                                         |                                                                                                                                                                                        |          | m s                                                                            | m s                                            |
| March 8                                                      | I. P. E.                                                                                                                                                                               | I. P. W. | 9 38' 58.1                                                                     | 9 38' 72.0                                    | March 26                                                     | I. P. E.                                                                                                                                                                               | I. P. E. | 18 54' 82.0                                                                    | 18 55' 00.4                                    |
| " 9                                                          | I. P. W.                                                                                                                                                                               | "        | 38' 63.1                                                                       | 38' 73.4                                      | " 27                                                         | I. P. W.                                                                                                                                                                               | I. P. W. | 54' 85.2                                                                       | 54' 97.5                                       |
| " 10                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 76.4                                                                       | 38' 77.1                                      | " "                                                          | I. P. E.                                                                                                                                                                               | "        | 54' 95.7                                                                       | 55' 06.7                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 76.3                                                                       | 38' 74.5                                      | " 28                                                         | "                                                                                                                                                                                      | I. P. E. | 54' 94.3                                                                       | 55' 04.2                                       |
| " 11                                                         | "                                                                                                                                                                                      | I. P. W. | 38' 58.2                                                                       | 38' 66.3                                      | " "                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 90.0                                                                       | 54' 96.5                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 57.8                                                                       | 38' 68.4                                      | " 29                                                         | "                                                                                                                                                                                      | I. P. W. | 54' 89.2                                                                       | 54' 95.0                                       |
| " 12                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 51.2                                                                       | 38' 56.0                                      | " 30                                                         | "                                                                                                                                                                                      | I. P. E. | .....                                                                          | 54' 84.6                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 53.2                                                                       | 38' 51.1                                      | " 31                                                         | "                                                                                                                                                                                      | I. P. E. | .....                                                                          | 54' 88.9                                       |
| " 13                                                         | "                                                                                                                                                                                      | I. P. W. | 38' 57.5                                                                       | 38' 64.5                                      | " "                                                          | I. P. W.                                                                                                                                                                               | "        | 54' 87.5                                                                       | 54' 96.9                                       |
| " "                                                          | I. P. W.                                                                                                                                                                               | "        | 38' 60.4                                                                       | 38' 66.2                                      | " 20                                                         | "                                                                                                                                                                                      | I. P. W. | 54' 89.5                                                                       | 54' 96.3                                       |
| " 14                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 68.0                                                                       | 38' 77.2                                      | " "                                                          | "                                                                                                                                                                                      | I. P. W. | 55' 01.1                                                                       | 55' 11.3                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 74.2                                                                       | 38' 78.4                                      | " 30                                                         | "                                                                                                                                                                                      | I. P. E. | 55' 02.6                                                                       | 55' 07.9                                       |
| " 15                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 73.9                                                                       | 38' 70.3                                      | " "                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 91.2                                                                       | 54' 98.3                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 70.1                                                                       | 38' 77.0                                      | " 31                                                         | "                                                                                                                                                                                      | I. P. E. | 54' 89.0                                                                       | 55' 04.6                                       |
| " 16                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 56.5                                                                       | 38' 61.8                                      | " "                                                          | "                                                                                                                                                                                      | I. P. E. | 55' 00.6                                                                       | 54' 99.1                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 59.8                                                                       | 38' 58.4                                      | " 1                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 92.9                                                                       | 54' 98.6                                       |
| " 17                                                         | "                                                                                                                                                                                      | I. P. W. | 38' 54.9                                                                       | 38' 60.0                                      | " "                                                          | "                                                                                                                                                                                      | I. P. W. | 54' 96.2                                                                       | 55' 02.8                                       |
| " "                                                          | I. P. W.                                                                                                                                                                               | "        | 38' 52.8                                                                       | 38' 58.2                                      | " 2                                                          | "                                                                                                                                                                                      | I. P. W. | 54' 99.7                                                                       | 54' 97.8                                       |
| " 18                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 56.1                                                                       | 38' 66.8                                      | " 3                                                          | "                                                                                                                                                                                      | I. P. W. | 55' 01.0                                                                       | 55' 04.7                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 57.6                                                                       | 38' 60.0                                      | " 4                                                          | "                                                                                                                                                                                      | I. P. W. | 55' 01.3                                                                       | 55' 05.4                                       |
| " 19                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 66.7                                                                       | 38' 74.1                                      | " 5                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 83.7                                                                       | 54' 90.8                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 65.8                                                                       | 38' 65.5                                      | " 6                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 89.9                                                                       | 55' 06.1                                       |
| " 20                                                         | "                                                                                                                                                                                      | I. P. E. | 38' 60.9                                                                       | 38' 68.6                                      | " 7                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 84.6                                                                       | 54' 87.0                                       |
| " "                                                          | I. P. E.                                                                                                                                                                               | "        | 38' 65.3                                                                       | 38' 66.2                                      | " 8                                                          | "                                                                                                                                                                                      | I. P. E. | 54' 80.3                                                                       | 54' 92.6                                       |
| " 21                                                         | "                                                                                                                                                                                      | I. P. W. | 38' 62.5                                                                       | 38' 67.3                                      | " 9                                                          | "                                                                                                                                                                                      | I. P. W. | 54' 80.9                                                                       | 54' 96.2                                       |
| " "                                                          | I. P. W.                                                                                                                                                                               | "        | 38' 58.2                                                                       | 38' 69.3                                      | " 10                                                         | "                                                                                                                                                                                      | I. P. W. | 54' 87.2                                                                       | 54' 95.3                                       |
| " 22                                                         | "                                                                                                                                                                                      | I. P. W. | 38' 73.0                                                                       | 38' 92.7                                      |                                                              |                                                                                                                                                                                        |          |                                                                                |                                                |
| " "                                                          | I. P. W.                                                                                                                                                                               | "        | 38' 73.1                                                                       | 38' 79.4                                      |                                                              |                                                                                                                                                                                        |          |                                                                                |                                                |
| Mean of daily mean values for instrumental position          | { I. P. E. at both stations ...<br>I. P. W. at E Station and }<br>I. P. E. at W Station }<br>{ I. P. W. at both stations ...<br>I. P. E. at E Station and }<br>I. P. W. at W Station } |          | 9 38' 59.3                                                                     | 9 38' 60.5                                    | Mean of daily mean values for instrumental position          | { I. P. E. at both stations ...<br>I. P. W. at E Station and }<br>I. P. E. at W Station }<br>{ I. P. W. at both stations ...<br>I. P. E. at E Station and }<br>I. P. W. at W Station } |          | 18 54' 87.6                                                                    | 18 54' 93.6                                    |
| Weighted Mean ...                                            | ...                                                                                                                                                                                    | ...      | $\delta L_N =$                                                                 | $\begin{matrix} m \\ 9 \end{matrix} 38' 65.7$ | Weighted Mean ...                                            | ...                                                                                                                                                                                    | ...      | $\delta L_N =$                                                                 | $\begin{matrix} m \\ 18 \end{matrix} 54' 94.6$ |
| Correction for Relative Personal Equation, $S_N - H_N =$     | ...                                                                                                                                                                                    | ...      | -                                                                              | 0.008                                         | Correction for Relative Personal Equation, $S_N - H_N =$     | ...                                                                                                                                                                                    | ...      | -                                                                              | 0.008                                          |
|                                                              |                                                                                                                                                                                        |          | $\Delta L_N =$                                                                 | $\begin{matrix} m \\ 9 \end{matrix} 38' 64.9$ |                                                              |                                                                                                                                                                                        |          | $\Delta L_N =$                                                                 | $\begin{matrix} m \\ 18 \end{matrix} 54' 93.8$ |
| Again ...                                                    | ...                                                                                                                                                                                    | ...      | $\delta L_S =$                                                                 | $\begin{matrix} m \\ 9 \end{matrix} 38' 66.0$ | Again ...                                                    | ...                                                                                                                                                                                    | ...      | $\delta L_S =$                                                                 | $\begin{matrix} m \\ 18 \end{matrix} 54' 89.6$ |
| Correction for Relative Personal Equation, $S_S - H_S =$     | ...                                                                                                                                                                                    | ...      | +                                                                              | 0.029                                         | Correction for Relative Personal Equation, $S_S - H_S =$     | ...                                                                                                                                                                                    | ...      | +                                                                              | 0.029                                          |
|                                                              |                                                                                                                                                                                        |          | $\Delta L_S =$                                                                 | $\begin{matrix} m \\ 9 \end{matrix} 38' 68.9$ |                                                              |                                                                                                                                                                                        |          | $\Delta L_S =$                                                                 | $\begin{matrix} m \\ 18 \end{matrix} 54' 92.5$ |
| Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) =$ |                                                                                                                                                                                        |          | $\begin{matrix} m \\ 9 \end{matrix} 38' 66.9$                                  |                                               | Finally $\Delta L = \frac{1}{2} (\Delta L_N + \Delta L_S) =$ |                                                                                                                                                                                        |          | $\begin{matrix} m \\ 18 \end{matrix} 54' 93.2$                                 |                                                |
|                                                              |                                                                                                                                                                                        |          | $\rho = + 0.025$                                                               |                                               |                                                              |                                                                                                                                                                                        |          | $\rho = + 0.038$                                                               |                                                |

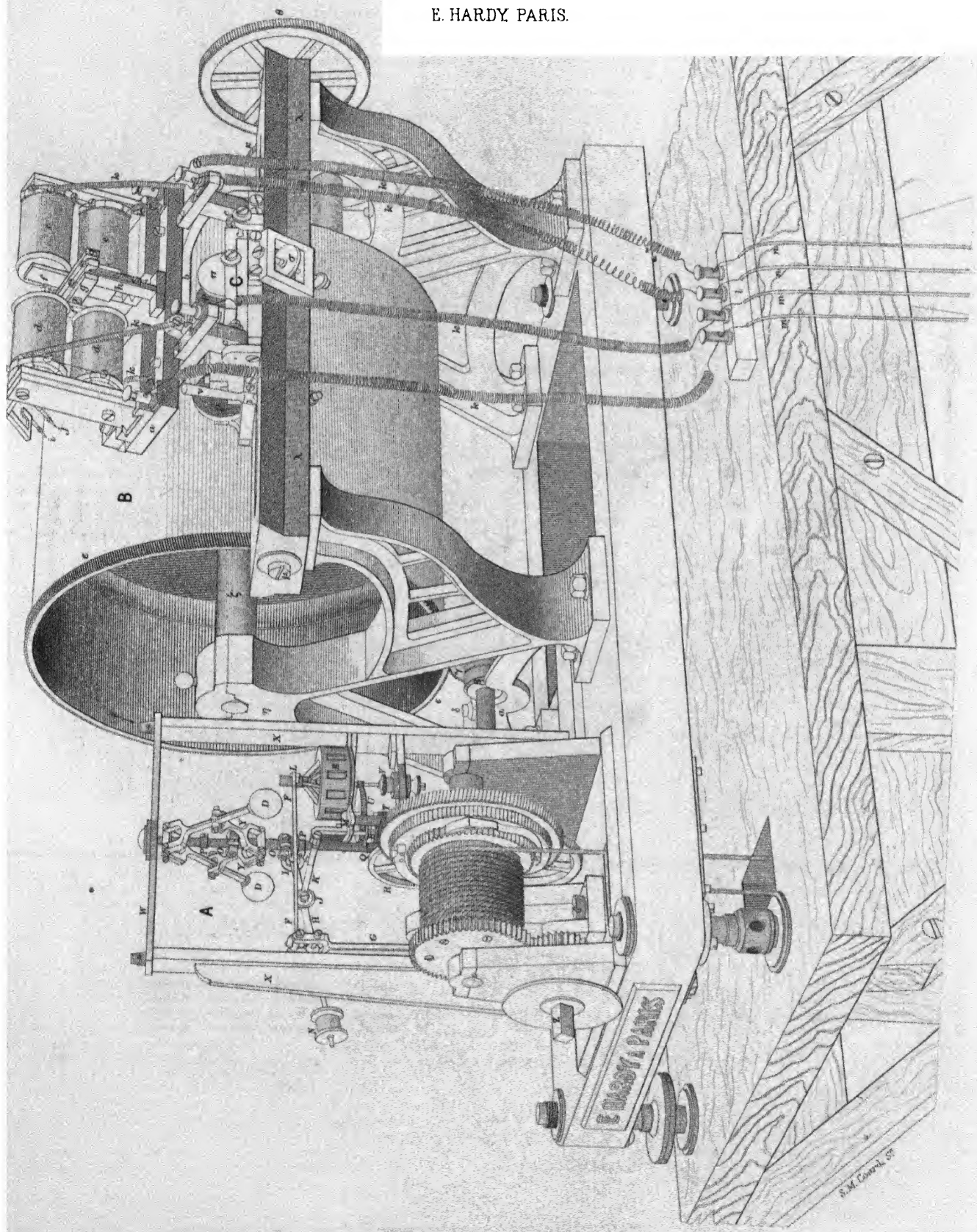




CHRONOGRAPH

BY

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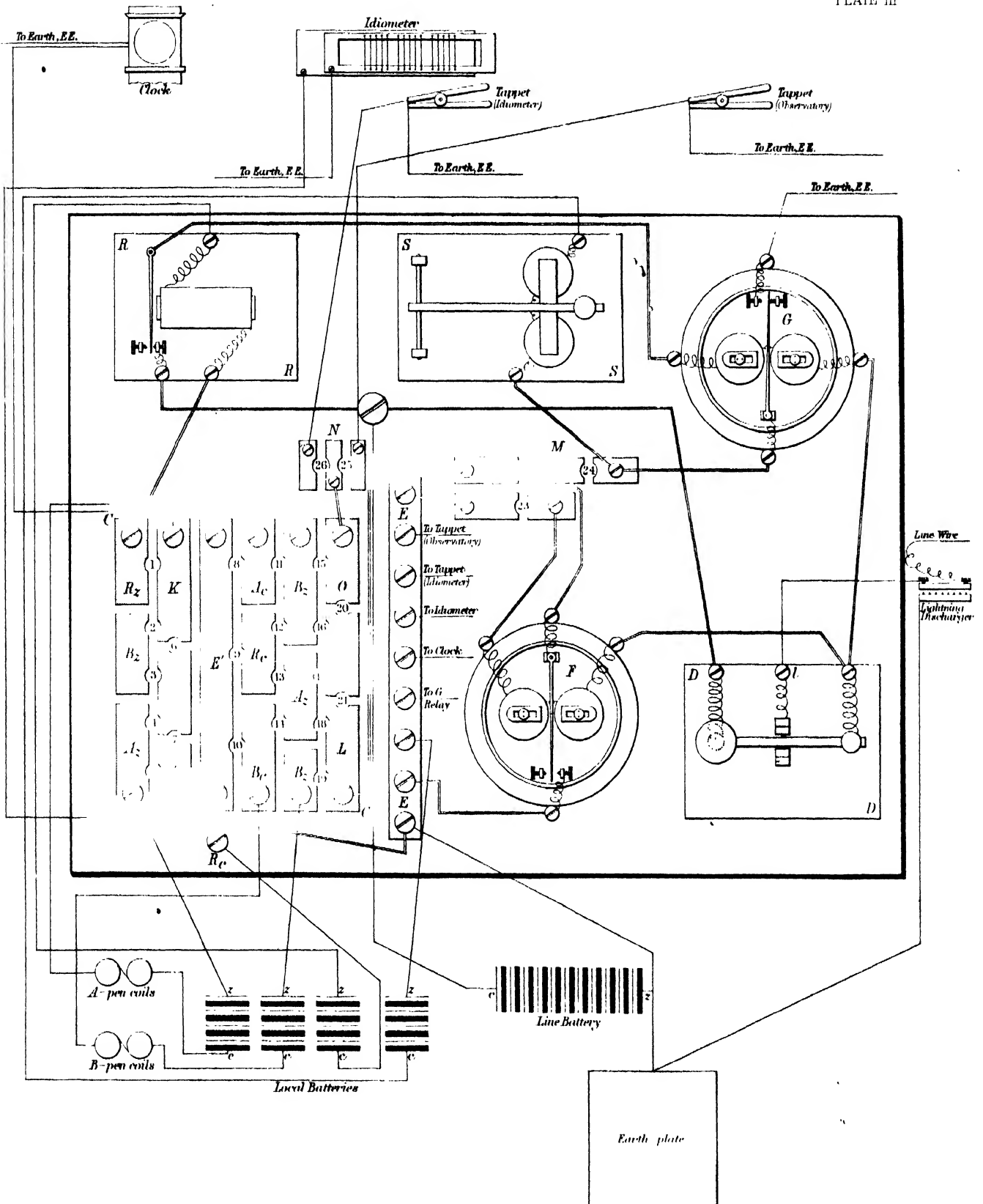




# COMMUTATOR BOARD

Scale about  $\frac{1}{4}$  real size.

PLATE III



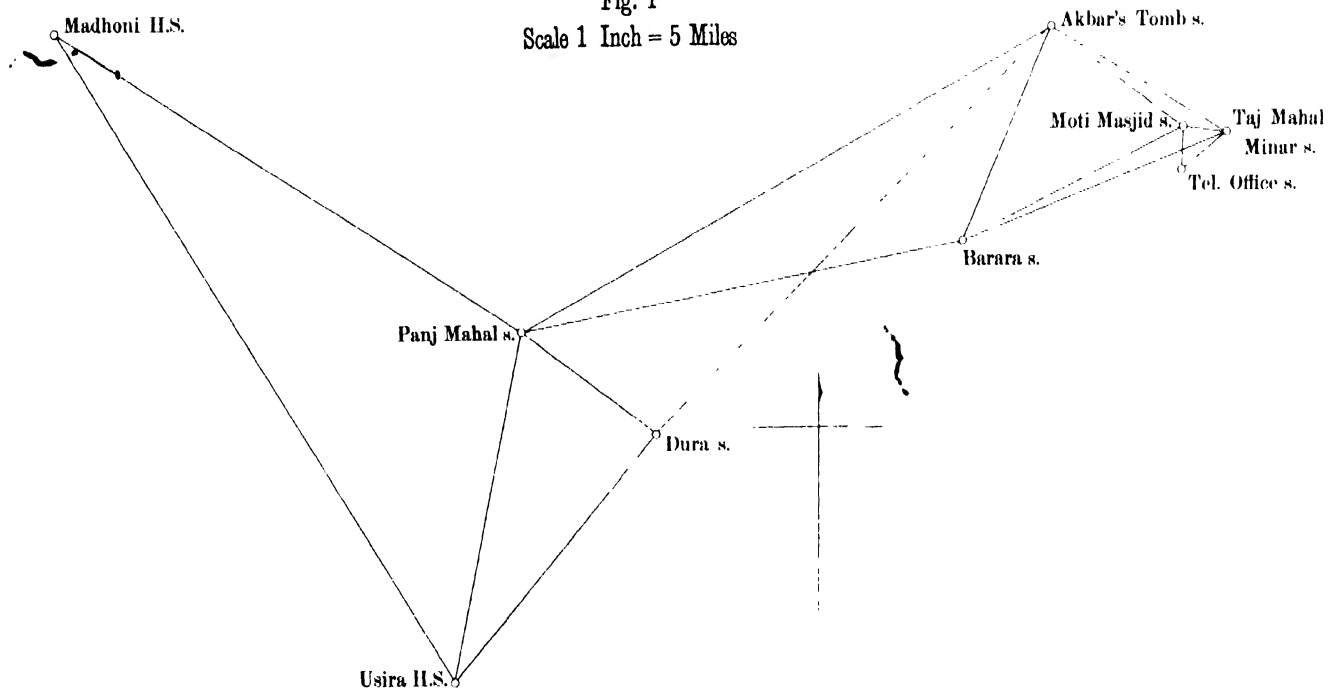




# AGRA CONNECTION

Fig. 1

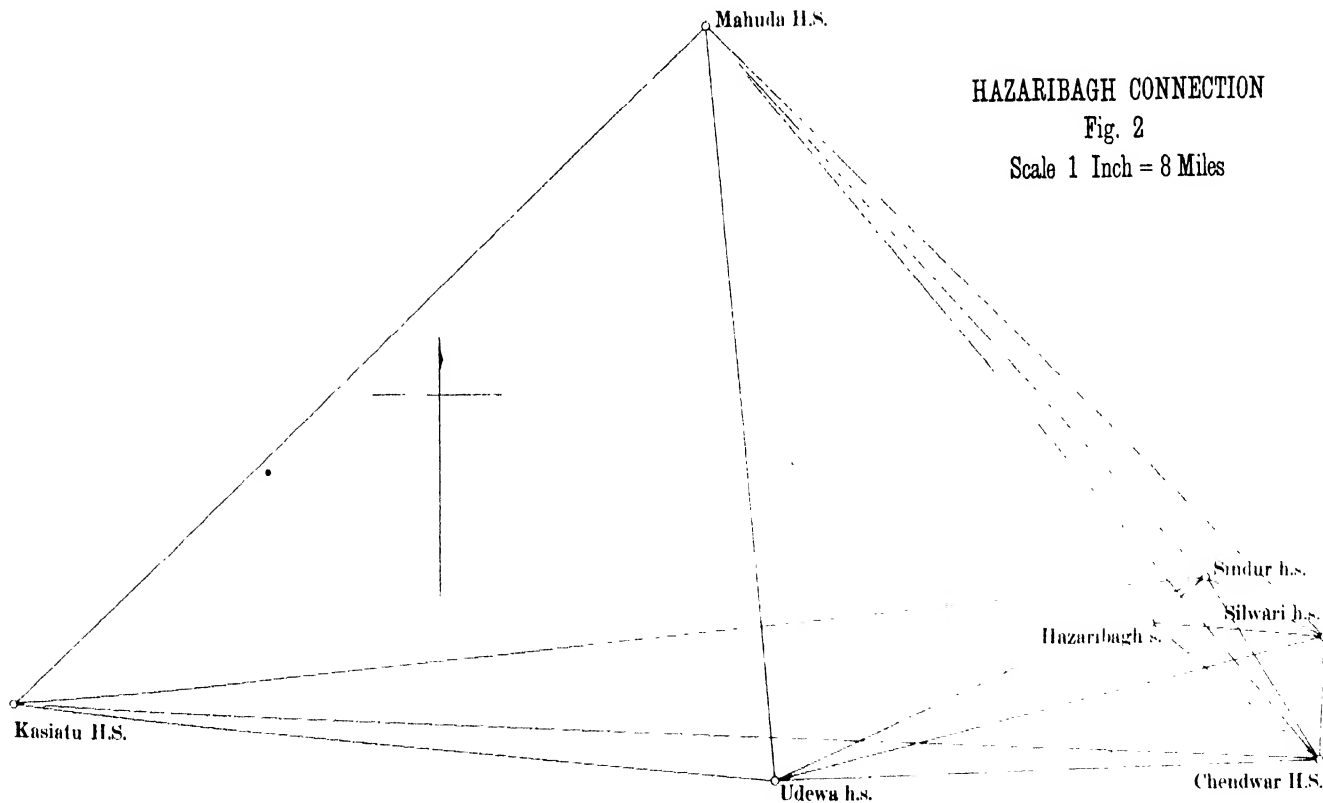
Scale 1 Inch = 5 Miles



# HAZARIBAGH CONNECTION

Fig. 2

Scale 1 Inch = 8 Miles



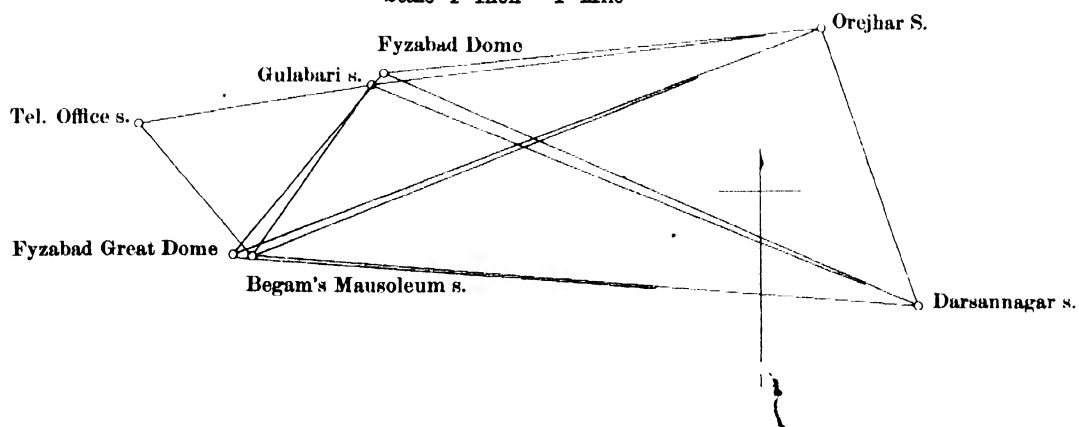


# FYZABAD CONNECTION

PLATE V

Fig. 1

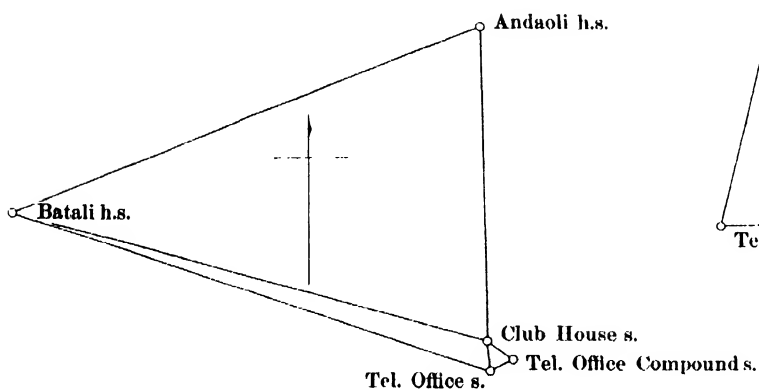
Scale 1 Inch = 1 Mile



# CHITTAGONG CONNECTION

Fig. 2

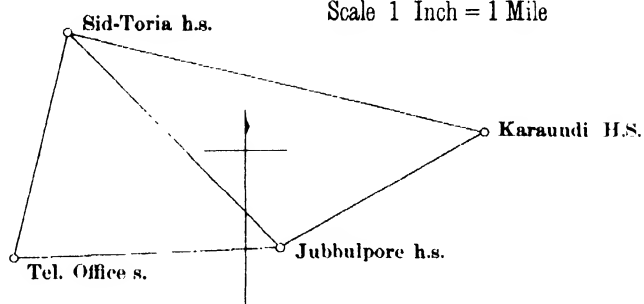
Scale 2 Inches = 1 Mile



# JUBBULPORE CONNECTION

Fig. 3

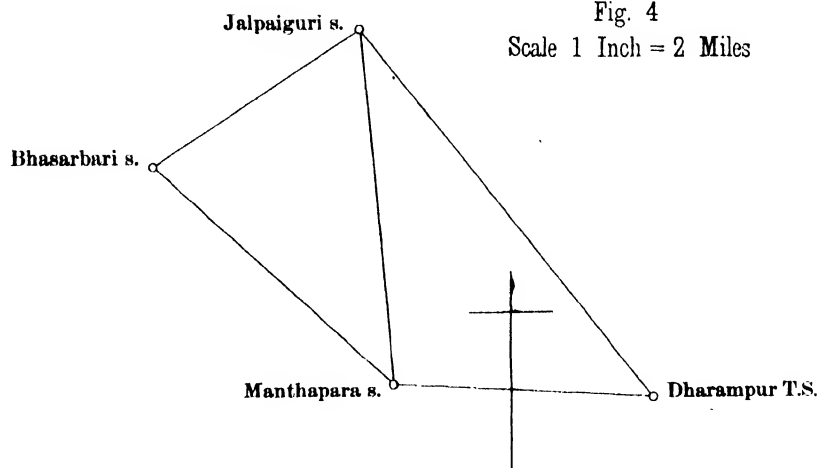
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# JALPAIGURI CONNECTION

Fig. 4

Scale 1 Inch = 2 Miles

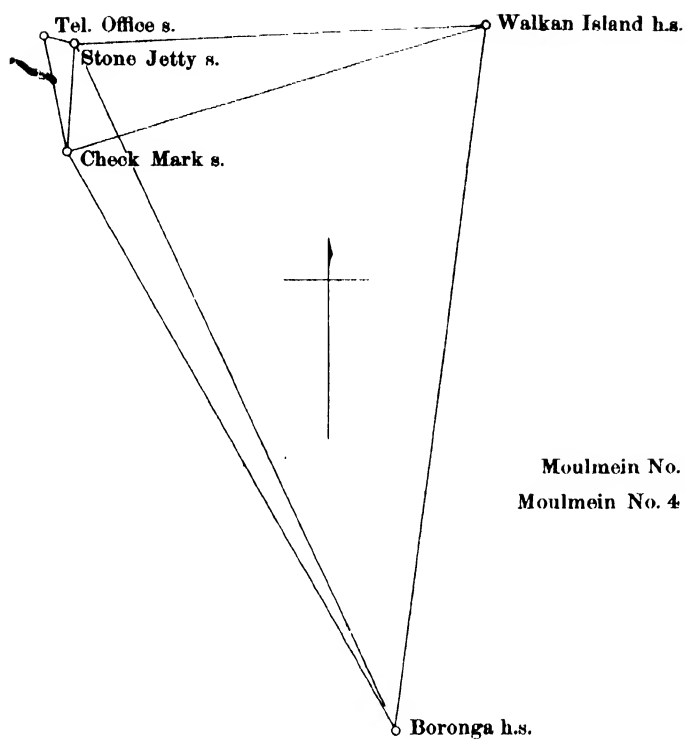




# AKYAB CONNECTION

Fig. 1

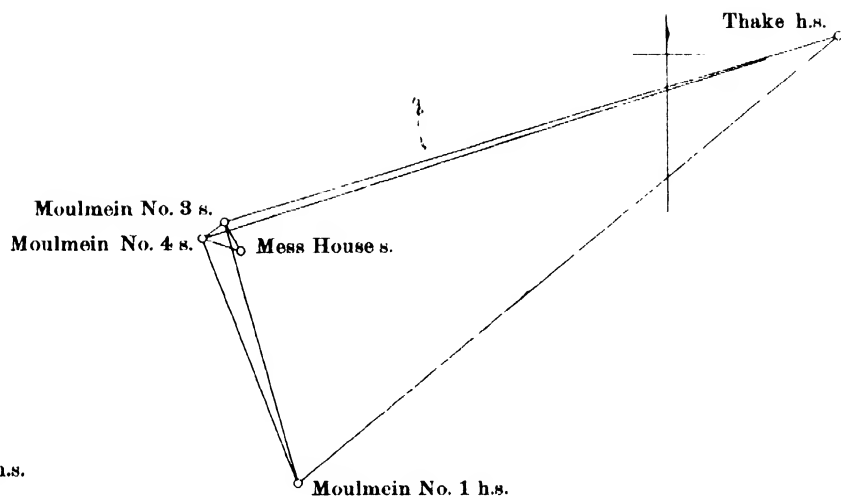
Scale 1 Inch = 2 Miles



# MOULMEIN CONNECTION

Fig. 2

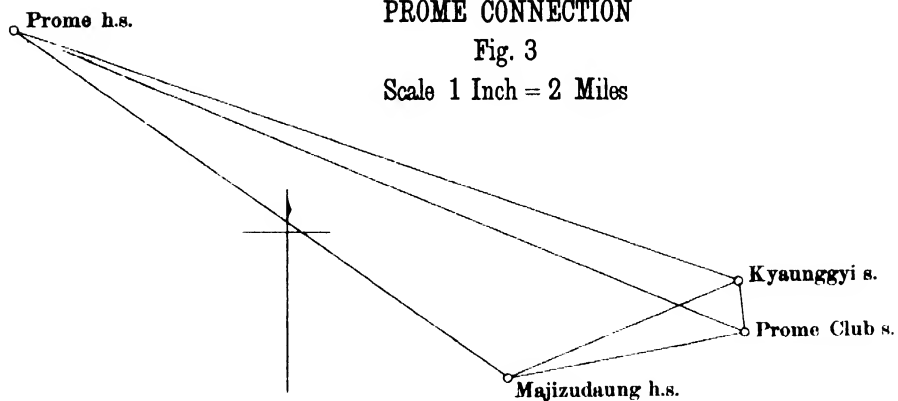
Scale 1 Inch = 1 Mile



# PROME CONNECTION

Fig. 3

Scale 1 Inch = 2 Miles





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